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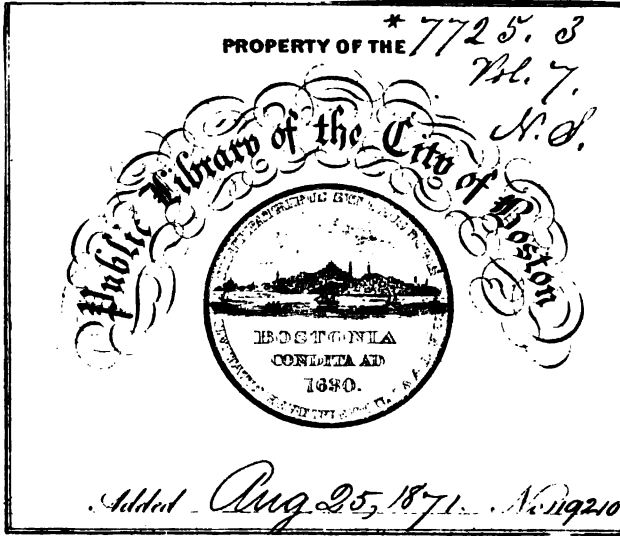
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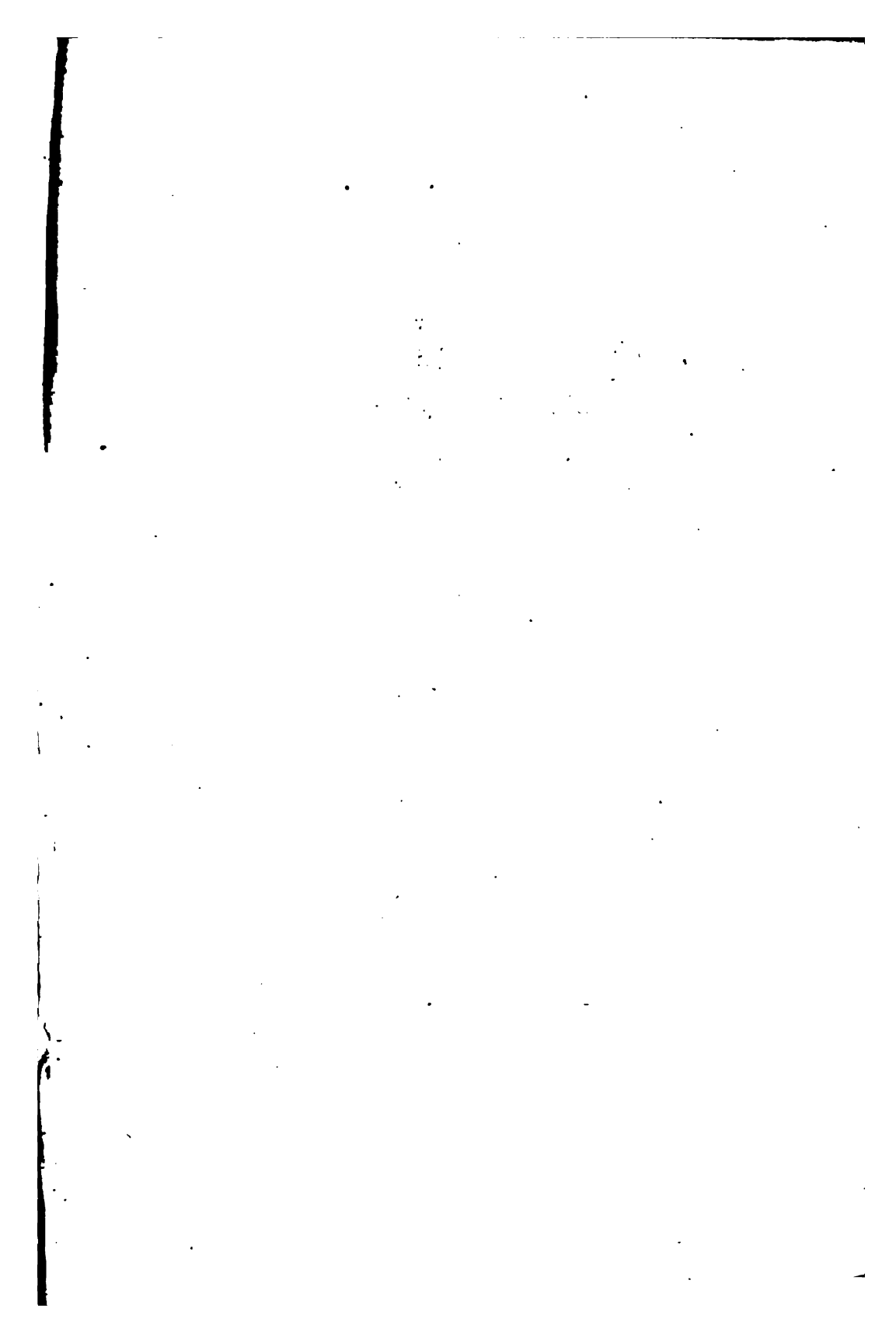
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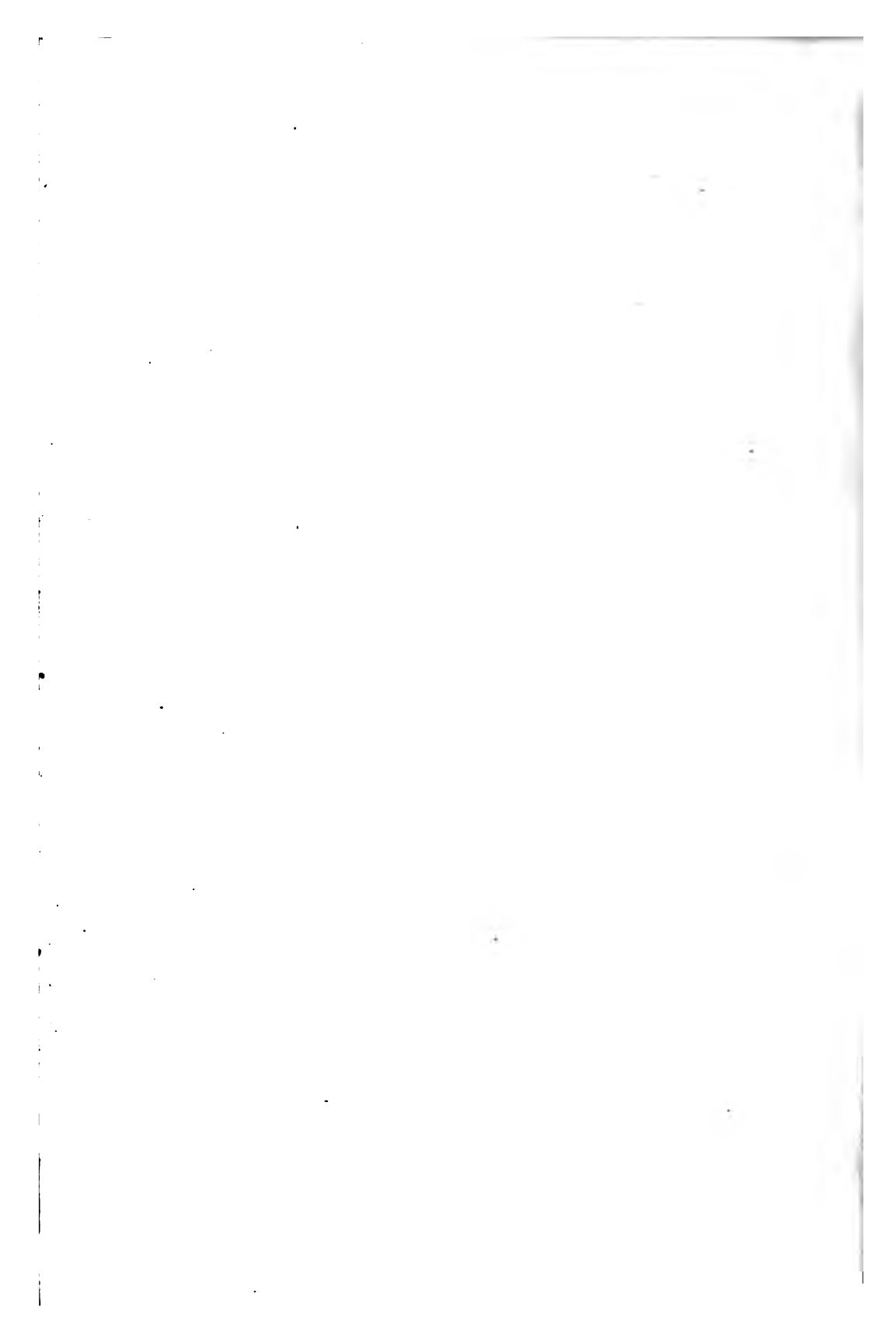


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SAINT LOUIS
MEDICAL AND SURGICAL
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EDITED, IN CONJUNCTION WITH

M. L. LINTON, M.D.,

Professor of the Principles and Practice of Medicine in the St. Louis Medical College,

BY

G. BAUMGARTEN, M.D.

"Rationalem puto medicinam esse debere."—CÆLIUS.

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Table of Contents.

VOLUME VII.

ORIGINAL COMMUNICATIONS.

	PAGE.
Lecture on Paralysis. By Prof. J. K. Bauduy, M.D.....	I
On Fractures. By Prof. John T. Hodgen, M.D...16, 97, 214, 328, 388, 531	
Contributions to Lithotomy. By Prof. Louis Bauer, M.D.—	
I. On Recto-Vesical Section, with Case.....	23
II. Case of Vesico-Vaginal Lithotomy.....	35
III. Case of Repeated Bilateral Lithotomy in a Child.....	38
The Scelometer; an Instrument for Measuring the Lower Extremi- ties in Fractures and Dislocations. By H. Z. Gill, M.D.....	40
Absence of the Vagina, Three Operations, etc. By Prof. Montrose A. Pallen, M.D.....	45
On the Relationship existing between some Forms of Hereditary Diseases. By Prof. W. B. Outten, M.D.....	54
Removal of the Entire Clavicle. By F. Cooley, M.D., Kansas City, On the Rise and Fall in Popular Favor of some of the Articles of Materia Medica. By E. Montgomery, M.D.	62 103
On the Radical Treatment of Chronic Otorrhœa (Purulent Otitis Media). By N. C. Washington, M.D., Vienna, Austria.....	116
Fracture of the Femur from Necrosis. By H. G. Lachmund, M.D., Sauk City, Wis.....	122
On Congenital Talipes. By W. S. Edgar, M.D.....	127
Case of Wound of the Brain—Recovery. By D. D. Halsted, M.D., Laclede, Mo.....	431
Cases illustrative of various Morbid Conditions of Innervation. By Thos. Fox, M.D.....	135
Contributions to Surgery. By Prof. L. Bauer, M.D.—	
1. Total Exsection of Elbow-Joint.....	193
2. False Anchylosis and Contraction of Knee-Joint.....	200
3. Traumatic Epilepsy relieved by Trephining.....	205
The Therapeutic Uses of Chloral. By Prof. M. M. Pallen, M.D....	212
Cases of Phthisis Pulmonalis. By Prof. P. G. Robinson, M.D....	221
Pathological Effects of a Largely Increased Atmospheric Pressure. By Prof. L. Bauer, M.D.	234
On Failure of Vision, from Disease of the Retina, as a Symptom of Bright's Disease. By Prof. John Green, M.D.....	289

	PAGE.
Clinical Lectures on Hydrarthrosis, Hæmatoarthrosis, and Perforating Wounds of the Knee-Joint. By Prof. L. Bauer, M.D.—	
I. Hydrarthrosis.....	295
II. Hæmatoarthrosis.....	311
III. Perforating Wounds of the Knee-Joint.....	313
A Simple, Cheap and Efficient Substitute for the Stomach-Pump. By Prof. John T. Hodgen, M.D.....	321
Uterine Catarrh. By Prof. M. A. Pallen, M.D.....	322, 411
Physiological Experiments on the Functions of the Membrana Tympani and Ossicula of the Ear in Health and Disease. By Dr. A. Politzer, Vienna. Reported by Dr. E. Van Millingen.	385
Dislocation of Cervical Vertebrae, with Dislocation of the Humerus. By Theodor Meyer, M.D., Belleville, Ill.....	393
Epithelial Cancer in a Girl æt. fifteen. By W. Coles, M.D., Parkersburg, W. Va.....	397
On Cancrum Oris. By W. S. Edgar, M.D.....	398
Synovitis of the Hip-Joint; Hæmorrhagic Diathesis. By Prof. A. J. Steele, M.D.....	403
Double-Acting Elastic Stomach-Pump. By Prof. J. T. Hodgen, M.D.....	420
On Infantile Paralysis. Clinical Lecture by Prof. L. Bauer, M.D....	481
Case of Complete Transposition of the Viscera. By R. Burgess, M.D., Ass't Phys. to the City Hospital.....	502
Epilepsy in its Medico-Legal Relations. By Prof. J. K. Bauduy, M.D.	506
Hæmophilia in a Child, with Effusion of Blood in the Ventricles. By L. TRANÉUS.....	535

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Laurence—Handy-book of Ophthalmic Surgery, 2d ed.....	64
Lawson—Diseases and Injuries of the Eye.....	64
Salomons—Hand-book of the Diseases of the Eye.....	65
Otis—Report on Excisions of the Head of the Femur for Gunshot Injury.....	65
Meyer—Electricity in its Relations to Practical Medicine. Transl. by Hammond.....	68
Hoppe—Percussion and Auscultation. Transl. by Lane.....	70
Archives of Ophthalmology and Otology.....	71
Transactions of the Amer. Ophthalm. Society, 1869; Transactions of the American Otological Society, 1869.....	73
Erichsen—The Science and Art of Surgery. From the 5th London edition. By Ashhurst.....	74
Third Annual Report of the Metropolitan Board of Health of New York, 1868.....	139
Hammond—Sleep and its Derangements.....	147
Bartholow—Manual of Hypodermic Medication.....	151
Garretson—Treatise on the Diseases and Surgery of the Mouth, Jaws and Associate Parts.....	153
Vogel—Practical Treatise on the Diseases of Children. Translated by Raphael.....	155

	PAGE.
Riley—Compend of Materia Medica and Therapeutics.....	157
Tanner—Manual of Clinical Medicine and Physical Diagnosis. 3d Amer., from 2d English edition by Tilbury Fox.....	158
Transactions of the American Medical Association, 1869.....	246
Bellevue and Charity Hospital Reports, 1870.....	249
Knapp—Treatise on Intraocular Tumors. Transl. by Cole.....	252
Smith—On the Wasting Diseases of Infants and Children.....	255
Flint—Manual of Chemical Examination of the Urine in Disease..	259
Hutchison—Acupressure.....	259
Packard—Hand-book of Operative Surgery.....	260
Williams—Diseases of the Eye. Third edition.....	261
Napheys—Modern Therapeutics....	261
Flint—The Physiology of Man: Secretion, Excretion, Ductless Glands.....	333
Tyson—The Cell Doctrine; its History and Present State.....	336
Reports on the Progress of Practical and Scientific Medicine. Ed. by Dobell.....	337
Gray—Anatomy, Descriptive and Surgical. New Amer., from 5th English edition.....	339
Bergeret—The Preventive Obstacle.....	340
Edes—The Physiology and Pathology of the Sympathetic Nervous System.....	342
Flint—Practical Treatise on Diseases of the Heart. Second ed....	343
Chambers—The Indigestions. Third Amer. edition.....	343
Stricker— <i>Studien aus dem Instit. f. experimentelle Pathologie in Wien.</i> 1869. I.....	422
Basham—Renal Diseases.....	426
<i>Sammlung klinischer Vorträge, herausg. v. R. Volkmann.</i>	427
Schmidt—Microscopical Anatomy of the Human Liver.....	429
Bell—Manual of the Operations of Surgery.....	430
Swayne—Obstetric Aphorisms. With Additions by Hutchins.....	431
Report to Faculty, Med. Dep. Univ. Louisiana, in regard to the Convention of Medical Teachers in Washington.....	431
Spinzig—Variola; Causes, Nature, Prophylaxis, and Treatment..	433
Legg—Guide to the Examination of the Urine.....	435
Elam—A Physician's Problems.....	538
Barnes—Obstetric Operations.....	544
Meigs and Pepper—Practical Treatise on Diseases of Children...	553
Da Costa—Medical Diagnosis. 3d edition.....	554
Clymer—Notes on the Physiology and Pathology of the Nervous System.....	555
Archives of Ophthalmology and Otology, I, 2.....	557

EXTRACTS FROM CURRENT MEDICAL LITERATURE.

ANATOMY AND PHYSIOLOGY—

The Normal Position of the Female Pelvic Organs.....	159
The Large Intestine in Infancy.....	160
On Going to Sleep.....	163

ANATOMY AND PHYSIOLOGY—*Continued.*

	PAGE.
The Nucleus of Red Blood-corpuscles.....	374
A Fluid for Preserving Anatomical Specimens.....	375
Suspension of Intestinal Secretion after Section of the Par Vagus.....	375

GENERAL PATHOLOGY AND PATHOLOGICAL ANATOMY—

Recent Researches on Tuberculosis.....	273
Experimental Investigations on the Production of Oedema.....	377
On the Development of Epithelial Cancer.....	378
The Cirroid Neuroma.....	379
On the Coexistence of Aneurismal Lesions in the Retina with Aneurisms of the Small Arteries of the Brain.....	380
Extensive Ossification of the Ascending Aorta.....	381

MEDICAL PRACTICE AND THERAPEUTICS—

Cerebral Embolism.....	165
Case of Spinal Apoplexy.....	166
The Treatment of Catarrh and Bronchitis.....	167
The Diagnostic Value of the Corpuscular Blood-Elements in the Urine in Bright's Disease.....	171
Treatment of Rheumatic Fever by Perchloride of Iron.....	174
Acute Mania Treated with Hydrate of Chloral.....	353
Hereditary Epilepsy cured by Bromide of Potassium.....	354
Whooping-Cough Treated by Chloral.....	355
Chloral in Asthmatic Bronchitis.....	355
Climatic Treatment of Consumption.....	356
Spontaneous Ptyalism.....	358
Treatment of Chronic Constipation.....	359
Diagnosis of the Cause of Icterus.....	360
Confluent Small-pox Treated by Carbolic Acid.....	361

DISEASES OF CHILDREN—

Prevention and Treatment of the Diarrhoeal Diseases of Infants.....	175
On Sleeplessness in Infants.....	181
On the Acid Dyspepsia of Infants.....	454

DERMATOLOGY—

On Molluscum Contagiosum.....	447
On the Specificity of Varicellæ.....	447
Variola verrucosa.....	448
Pathology of Lichen Scrophulosorum.....	448
Tinea circinata (Ringworm).....	449
Favus primarily developed on the Glans.....	451
Treatment of Itch by Balsam of Peru.....	451
Arsenic in Affections of the Skin.....	452

VENEREAL DISEASES—

Urethral Chancre observed by Desormeaux's Endoscope.....	268
Treatment of Constitutional Syphilis.....	270
Treatment of Syphilis by Creosote and Carbolic Acid.....	271
Syphilitic Headache.....	271

OPHTHALMOLOGY AND OTOTOLOGY—

Extraction of Cataract.....	75
Fracture of the Crystalline Lens in Persons executed by Hanging.....	76
Stricture of the Nasal Duct.....	79
On the Use of Leadon Styles in Lachrymal Obstructions.....	83
Keratomalakia in Young Children. [Transl. by Dr. N. C. Washington.].....	84
Isolated Rupture of the Choroid from Concussion.....	88

OPHTHALMOLOGY AND OTOTOLOGY—*Continued.*

	PAGE.
Method of Dressing Eyes after Ophthalmic Operations requiring Exclusion of Light.....	91
On the Direction of the Principal Meridians in the Astigmatic Eye.....	559
On Diminished Range of Accommodation as a Cause of Strabismus ..	563
An Additional Method to determine the Degree of Ametropia.....	564
Luxation of the Crystalline Lens.—Mechanism of Accommodation	564
On Retinitis Leucæmica.....	566
Danger of Inflammation of Middle Ear from Nasal Douche.....	567

SURGERY—

Dolbeau's Use of Alcohol in Dressing Surgical Wounds.....	185
Temporary Deligation of the Abdominal Aorta.....	187
Two Cases of Dislocation of the Clavicle.....	188
Dislocation of the Elbow; new Method of Reduction.....	262
Case of Fracture of the Odontoid Process of the Axis.....	263
New Method of Using Needles in the Operation for Harelip.....	265
Ulceration of the Umbilicus and Strangulation of the Intestine.....	266
Operation for Fistula in Ano.....	267
The Anatomical Changes in Arteries after Ligation, Acupression and Torsion.....	461
Etiology of Erysipelas from Wounds.....	463
Nerve-Irritation cured by Surgical Operations.....	463
Simple Method for removing Cystic Tumors from the Eyelids.....	464
A Peculiar Inflammation of the Lower Lip.....	465
On Forced Flexion of the Limbs in Traumatic Hæmorrhage	466
Extirpation of a Kidney in Man.....	466
On Stricture of the Rectum.....	468

OBSTETRICS—DISEASES OF WOMEN—

A Mode of Applying the Short Midwifery Forceps.....	345
The Treatment of Prolapse of the Umbilical Cord.....	348
Nursing by the Mother.....	349
Treatment of Menorrhagic Chlorosis.....	350
Treatment of Chronic Uterine Catarrh.....	351
Operative Procedures on the Neck of the Uterus.....	569
Influence of Chloral on the Pain of Parturition.....	571
The Duration of Gestation.....	573

HYGIENE—STATE AND FORENSIC MEDICINE—

On the Prevention of Venereal Diseases.....	362
On Signs in determining whether a Child was Born Alive or Dead.....	370

MATERIA MEDICA AND THERAPEUTICS—

Therapeutic Notes on Chloral.....	279
Strychnine as an Antidote in Chloral Poisoning.....	282
Peculiar Effect of Chloroform.....	283
Influence of Chloroform in Promoting Cutaneous Absorption.....	283
Subcutaneous Injection of Morphia in aid of Chloroform Narcosis.....	436
Acetic Ether as an Anæsthetic.....	436
Hydrate of Chloral.....	437
Use of Chloral in Phthisis.....	440
Recrystallized Chloral Hydrate.....	440
On Apomorphia.....	442
New Remedy for Ague.....	443
Extract of Calabar in Atonic Conditions of the Intestinal Canal.....	444
Belladonna an Aperient in Constipation.....	445
On Drastics.....	445
Iodized Milk.....	446
Mode of Administering Creosote.....	447

EDITORIAL.

	PAGE.
Medical Journalism in the United States.....	471
Death of Prof. Charles A. Pope.....	384
Yearly Report of Atmospheric Electricity, Temperature and Humidity, at St. Louis. By A. Wislizenus, M.D.....	95
Meteorological Observations at St. Louis. (Monthly Means.) By A. Wislizenus, M.D.....	93, 190, 287, 382, 479, 575

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LECTURE ON PARALYSIS.

Delivered in the Preliminary Term of the St. Louis College of Physicians and Surgeons, by J. K. BAUDUY, M.D., Prof. of Diseases of the Mind and Nervous System.

We will commence this course of lectures, gentlemen, by a careful study of some of the principal clinical varieties of paralysis. This is a subject replete with interest, and of the utmost importance to the practical physician. The word paralysis means a loss of muscular contractility, and necessarily implies an impairment of the power of motion. Sensation may be more or less affected in these cases, sometimes morbidly increased, when we use the term hyperæsthesia; sometimes greatly or altogether diminished, which condition is known as anæsthesia. When, however, we use indefinitely the term paralysis, motion is always understood as being particularly affected, and is therefore the disturbed function to which we particularly allude. Paralysis may be general or only partial. It may affect many

muscles, a group of muscles, or only one muscle. When confined to one side of the body we call it hemiplegia; when affecting the lower half of the body, paraplegia is the term by which it is designated. Again it may suddenly occur, as we will hereafter see, or, on the other hand, its invasion may be gradual, insidious, and almost imperceptible. Never lose sight of the fact that paralysis is always a *symptom*, never a *disease*. If you always recollect this fact you will invariably seek to make a correct diagnosis as to its cause, never contenting yourselves with the mere knowledge of its existence; thus you will apply the proper therapeutic measures to each case, and your prognosis, which is a matter of much importance, will not be founded on error. To illustrate this explanation by another disease, so as to impress it thoroughly upon your minds, we will consider what a physician does in cases of dropsy, which, like paralysis, is only a symptom, and never the disease, bearing the relation of effect to cause. Is his duty accomplished when satisfied of the existence of dropsy in his patient? Does he not carefully interrogate each organ to ascertain their condition? Does he not earnestly strive to determine whether his patient is laboring under cardiac, hepatic or renal disorder before making any attempts at medication? Thus it is in reference to paralysis. Once aware of its cause, and a great part of the problem of prognosis and treatment is solved.

The principal causes of paralysis may be divided as follows: 1st, *All lesions of nerve centers* are apt to be followed by paralysis. Spicula of bone, clots of blood, effusions, tumors, inflammations, softening, are all so many causes of paralysis. Any *functional* disturbance of the brain, spinal cord, or great nerve centers may likewise be followed by paralysis, as, for instance, emotional and ditheritic paralysis. *Any lesion in the continuity* of a nerve will as surely produce paralysis as will a break or interruption in the course of a telegraph wire prevent the transmission of the electric fluid. Any affection or disturbance

of the nerves at their *periphery*, or extremities, may result in paralysis, and we have well-marked instances of peripheral paralysis. This variety of palsy is usually local in character. All physicians constantly meet with phenomena due to *reflex nerve action*, and prominent amongst them is reflex paralysis. The spinal cord being the great center of reflex action, communicates impressions it receives from one part of the body to distant parts. First it receives the impression, we will say, for instance, from the periphery through the medium of the sentient nerves. The impression is duly recognized in the ganglionic or deep-seated portions of the cord. A new nervous influence is generated and transmitted with the rapidity of lightning to distant parts through the motor nerves, occasioning involuntary muscular action. Hence, a diseased or morbidly irritated part may, through the medium of nervous communication or reflex action, influence distant parts of the system. You will therefore perceive that difficult dentition, worms, ingesta and intestinal irritations, in both adults and children, may be the cause of fleeting forms of paralysis. A wound of a nerve on one side of the body has been known to occasion paralysis on the other.

Causes which produce *disturbances of the circulation* are sometimes productive of paralysis. Obliteration of important arteries, or plugs of fibrin diminishing or filling up their calibre, may prove very serious causes of palsy.

Paralysis may be due to a *morbid state of the muscles themselves*, which is a condition totally distinct from the other forms, as then the nerve influence may be perfectly healthy and normal, and yet a decided palsy occur. *Contamination of the blood* with poisons produces many of the well-known clinical varieties of paralysis. Arsenic, lead, mercury, alcohol, the materies morbi of gout, rheumatism, diphtheria, etc., operate changes in the economy that interfere with nerve function. These are, therefore, the principal causes of paralysis, and we will now occupy your attention with a short description of the best known varie-

ties, which you will most frequently meet with in practice.

Hemiplegia is paralysis confined to one-half of the body, generally affecting all the muscles which are voluntary. The limbs are, as it were, dead, deprived of the powers of motion and sensibility. The cheek on the same side as the paralyzed limbs hangs; the mouth is drawn towards the healthy side, in consequence of a paralysis of the muscles on one side, which no longer antagonize those on the healthy side—hence the healthy muscles draw it to their side; the tongue is ordinarily pushed out towards the palsied side, because the muscles which protrude the tongue on the healthy side alone act; those on the affected side remaining motionless, the muscular contractions on the opposite side force the tongue towards the side where there is an absence of all action, diminished resistance, or cessation of antagonism. Articulation is imperfect, and at times it is quite difficult to intelligibly interpret the expressions of the unfortunate patient. Brain lesion is the common cause of hemiplegia. We would therefore naturally expect to find more or less evidences of mental impairment or a disordered condition of the intellectual manifestations; whereas, in spinal lesions producing paraplegia or hemiplegia from an involvement of the upper half of the cord, such symptoms are entirely absent.

Taking it for granted that we have ascertained the hemiplegia to be of cerebral origin, the next important thing that presents itself to our mind is to determine the *character*, and then, as far as possible, the *seat* of the lesion.

This latter point will not present as many difficulties as the other. It will be sufficient here to state that the lesion is always situated on the side opposite to the paralysis, provided the lesion (which is generally the case) is situated above the point of decussation of the fibres of the medulla oblongata. A lesion on a level with this decussation would necessarily involve both sets of fibres, and consequently produce a double-sided palsy. A lesion below the point of decussation would be followed by palsy on the same side as

the lesion. Now, as the corpus striatum is believed by most physiologists to preside over the generation of motor impulses, should motion be particularly involved in the paralysis, we would readily conclude that the nerve center most suffered. On the other hand, as the thalamus opticus is credited with the production of the sensory phenomena, an impairment of sensation would immediately suggest to our minds its disturbance. These suppositions are to a certain extent correct in theory, but so intimate is the connection of these two bodies that one is rarely involved without a corresponding damage inflicted upon the other.

The *nature* of the lesion can be determined only after a careful consideration of all the facts of the case. RÉCAMIER, TROUSSEAU, TODD, and other authors, state that an absolute and complete paralysis coming on *suddenly*, and accompanied with profound coma, is almost pathognomonic of serous or sanguineous apoplectic extravasation. Paralysis, on the other hand, which, though complete and *sudden*, unaccompanied by coma or loss of consciousness, is almost certainly caused by white or atrophic softening of the brain. Paralysis occurring *gradually* and insidiously, is generally the result of *chronic* brain disease, viz : abscess, tumors, exostosis, red softening, and other brain affections, which slowly develop themselves, and very gradually exercise increased pressure upon the great cerebral centers. The age of the patient must also guide us in our diagnosis, as after a person has passed fifty years of age, atrophic softening frequently manifests itself by complete and unexpected paralysis, without any evidence of the comatose stage.

Our task of unraveling the character of the lesion does not end here. We must explore every organ of the body minutely and carefully, in order to ascertain the cause of the paralyzing lesion. *The heart* must be most carefully auscultated, as any indications of cardiac disease would immediately awaken our suspicions and direct our attention to the circulating organs as the fons origo of the nervous

trouble. These suspicions would almost become convictions, did the previous history of the case plainly, in connection with cardiac lesion, establish the existence of rheumatic diathesis. Cardiac troubles, and especially hypertrophy, lead to apoplectic extravasations into the brain. Or it may happen that a fibrinous concretion is washed into the blood current from one of the heart's valves, or a small fibrinous clot may be hurried along and finally impacted in a cerebral artery, effectually plugging it up, interfering with the nutrition of that part of the brain thereby supplied, thus eventuating in atrophic softening.

Then, again, the *kidneys* may be at fault, and in consequence of their disease, excretion is imperfectly performed, the blood becomes overcharged with excrementitious matters, nutrition is at length impaired, an atheromatous condition of the arteries is finally developed; all this in consequence of a poisoned blood, which in its turn produces chronic brain troubles, the last link in this long chain of pathological changes.

We still have other expedients in aiding us to determine the character of the lesion, amongst which are the well known electrical observations of the late Dr. TODD. This distinguished author divides the state of the muscles after paralysis into three distinct states: *Muscular contraction*, or rigidity, occurring *early* or immediately after the development of the paralytic symptoms. According to him, such a state of affairs is indicative of an "irritative" brain lesion, such as apoplectic extravasation, inflammation, or a puriform accumulation in the subarachnoid spaces. Should the muscular *rigidity* develop itself *late*, and be accompanied with muscular atrophy, Dr. TODD attributes the above-mentioned phenomenon to "an irritation from cicatrization" occurring in the cerebral tissues. Finally, should *relaxation* be the prominent muscular characteristic, we may then conclude that the lesion is owing to some "depressing" cause, such as white softening with or without rupture of the blood vessels. The response to the

electrical stimulus will in the first instance be increased, in the latter greatly diminished.

By *Paraplegia* we mean a paralysis of the lower half of the body. This paralysis is double, that is it differs from hemiplegia in affecting both sides of the body, but it invariably affects the lower extremities. The cause of paraplegia is usually of spinal origin, the brain being unaffected. Hence we rarely or never have any symptoms of disturbed or impaired intellection, the spinal cord being the medium by means of which the brain's mandates are conveyed, nor does it in any manner preside over or generate the intellectual phenomena. Functional disturbances of the cord, without any evident lesion, may likewise produce paraplegia. The invasion of this form of paralysis is generally slow, and at times difficult to appreciate in its incipency. One side is frequently more affected than the other, and diminished sensibility is almost an invariable accompaniment of the diminished or totally extinct motor power.

To demonstrate the progress which has been made in the study of nervous affections, I will present for your consideration a form of spinal paralysis which fifty years ago would not have been diagnosed, and is certainly understood with extreme difficulty. In this hypothetical case I am indebted to the valuable contributions and lectures of Dr. BROWN-SÉQUARD. We will suppose that a patient comes to us with a perfect and complete paralysis of motion on one side, which, for convenience, we will imagine is the right, and on the same side, besides a markedly increased temperature, a permanent and marked hyperæsthesia exists. On the opposite, or left side, is a total abolition of sensation with diminished temperature, but perfect motor capacity. This paralysis we will suppose is absolute and complete from the neck downwards. The hyperæsthesia or increased sensibility deserves a passing remark, as one of the most important recent advances in physiology consists in Dr. BROWN-SÉQUARD's demonstration of the fact "that nerve conductors of the various kinds of sensitive impressions and

of the reflex phenomena, and also those for the transmission of nervous force to muscles, blood vessels, etc., are absolutely distinct one from the other as regards their functions. For instance, there are four distinct kinds of nerve fibres of the higher senses. *Touch*, or the faculty of sensation, causes the appreciation of the object brought in contact, and its qualities, properties, and characters. The next nerve fibre we have to consider as being a conductor of one of the four kinds of the higher senses is the one which conveys sensations of *tickling*, which is a sensibility quite distinct from the other. There is also a fibre capable, especially, of transmitting *painful* impressions, such as a pinch or prick. Lastly, a fibre, the appropriate function of which is that of conveying to the brain due appreciation of *temperature*, or cold and heat. Hence we have distinct varieties of sensation, each having appropriate conductors, *totally distinct*, and perfectly independent one from the other, as regards their function." Our patient is affected, therefore, with a complete paralysis of one half of the body, from the head downwards. On the same side of the body on which paralysis of motion exists he has increased sensibility, manifesting itself by extreme sensibility to touch, tickling, pain and temperature; and in addition to all this, as we have already stated, the temperature is increased. On the left side, of course, we will have an anæsthesia of these four kinds of sensibility. In the *face*, on the side of the injury, there is an increased heat, an increased sensibility, and a contraction of the pupil. Now, how shall we explain the lesion which produces these symptoms? The pathological condition which we would expect to find would be an injury of the entire lateral half in its length of the spinal cord. The paralysis of motion is on the right, or side of the injury, because the motor nerve fibres "emerge from each side of the spinal column in such a manner that the fibres which control the movements of limbs on the right side pass to the right side;" whereas, on the other hand, "the sensitive nerve fibres which serve to the first

four kinds of sensibilities we spoke of, pass into the spinal column in such a manner as to go to the other side of that organ, so that the nerve fibres of sensibility in my right arm and right leg pass into the *left* side of the spinal column." Hence impaired sensibility exists on the opposite side of the body to that of the injury. It may be well here to remark that the sensitive nerves decussate through the entire length of the spinal cord, and that the motor nerves only decussate in the pyramidal columns of the medulla oblongata. Late physiological researches seem to establish the fact quite clearly that the posterior columns are more intimately associated with the coördination of muscular movement, while the anterior columns are connected with motor and sensory phenomena. Hence in some diseases, as in progressive locomotor ataxy, where muscular coördination is particularly affected, the posterior columns are found seriously disorganized. The increase of heat in the right side is readily explained by the involvement of the sympathetic on the same side of the injury, as any lesion occasioning paralysis of this nerve necessarily affects the vaso-motor nerves which are derived from it, and we then must necessarily have the well-known congestions and increased temperature so ably demonstrated and first alluded to by MARSHALL HALL, when he experimented by dividing the cervical sympathetic. This hyperæmia has some analogy with inflammation, but is at the same time convincing proof, as VIRCHOW claims, that hyperæmias may and do exist without necessarily being followed by inflammatory changes, because suppuration, ulceration, gangrene, œdema, etc., never follow the division of the sympathetic, although the resulting congestions sometimes last weeks and months.

In paralysis, the nervous influence is not always at fault, and we must sometimes strive to ascertain whether the muscles themselves are not the seat of disease. A well marked form of motor deficiency is found in an affection known as "*progressive muscular atrophy*"—progressive, because of

the persistent and oftentimes rapid progress made when once the symptoms are well established; muscular, from the fact that the pathological changes occur in the ultimate muscular fibres themselves; atrophy, because of the characteristic wasting of the muscles. The recent advances in microscopic investigations prove beyond any probability of mistake that fatty transformations manifest themselves in the muscle-cells, and occasion the morbid changes and consequences which inevitably follow upon such errors of nutrition. The pathognomonic symptom "is a constantly increasing inability to perform certain muscular movements." Muscles thus affected dwindle, are prone to peculiar twitching movements, and present a peculiar soft and yielding sensation to pressure. The muscles of the hand, the flexors and supinators of the forearm, the biceps and deltoid, are more likely to be involved.

Hysterical Paralysis is a clinical variety of disease that it is all important to be acquainted with, as errors in diagnosis in such instances would seriously injure the reputation of the practitioner. This form of palsy is not the result of any structural lesion, but is a simple impairment of the functional nervous power. Some of its principal peculiarities are its sudden and unexpected development in persons of a markedly hysterical diathesis, and its just as sudden disappearance under some strong moral emotion. Moral influences are among its most powerful causes, the recollection of which point will materially aid us in diagnosis. There are usually no evidences of grave nervous disturbances which would naturally make us dread important cerebral lesions. There is a *superficiality* in the symptoms which will enable all but the unwary physician to avoid false deductions. An absence of all mental impairment, the fact that no tongue or face palsy exists, clearly point to the functional character of the disease. The rotundity of the limbs is generally preserved, and all the indications point to the hysterical origin of the disease. Paralysis of the limb, or part of a limb, as a joint or finger,

vocal absence (or aphonia), are the most common varieties of the disease we meet with in practice, although at times a partial hemiplegia or paraplegia are developed. The existence of the globus and clonus hystericus, the voiding of large quantities of limpid urine, the hysterical expression of countenance, the period of puberty, are all so many corroborative proofs in the diagnosis of this affection. Then, again, the peculiar movement of the leg if paralyzed is insisted upon by Dr. TODD as an important differential test. In hemiplegia from organic disease of the brain, the patient, in walking, "first throws the trunk to the opposite side and rests its entire weight on the sound limb; and then, by an action of circumduction, throws forward the paralyzed leg, making the foot describe the arc of a circle." On the other hand, in the hysterical variety, the limb is "*dragged*" "as if it were a piece of inanimate matter." "No act of circumduction nor effort of any kind to lift it from the ground" is used; "the foot sweeps the ground as the patient walks."

Hysterical paralysis is frequently met with, and requires much patience upon the part of the practitioner in its treatment; but the therapeutical indications in the different varieties of clinical paralysis of which we are treating to-day must form the subject for a future lecture. Hysterical aphonia is probably the most common form of the disease which we encounter. Dr. TODD considers it "the type" of this kind of paralysis. He adds that "in such cases you must satisfy yourselves that there is no morbid condition of the laryngeal mucous membrane, whether tubercular or otherwise, and if no seriously disturbed state of the system should arise, your prognosis may be favorable, assuring the patient that in due course of time her voice will return." The periods preceding the critical time of life, and that following puberty, are very favorable for the manifestations of hysteria.

Emotional hemiplegia may be mentioned, *en passant*, as a rare clinical variety, which you may perhaps never meet with in a long experience. Powerful mental emotions,

such as fright, anger and passion, will sometimes temporarily affect the power of utterance or of intelligible articulation. These same influences will, in persons predisposed, sometimes result in a temporary paralysis of speech. The power of language, however, in most instances returns in a few days, as soon as the patient makes a little progress in his efforts to articulate some simple monosyllabic words. In such cases there is of course no serious brain disturbance, shock being the important element in the production of the phenomena.

Lead Palsy is an affection it behooves you well to understand, as its common occurrence will necessarily awaken in your minds more than an ordinary interest. The disturbances or lesions it produces are not of an organic character, at least so far as an involvement of the great nerve centers is concerned. The muscles and nerves are probably first affected, and later in the complaint the great centers may become involved if the morbid process is not arrested. The *local* symptoms of paralysis always precede the graver manifestations of the late periods of the disease. Epileptic convulsions and even brain softening, which appear late in aggravated cases as decided evidences of centric disturbances and changes, are invariably preceded by milder symptoms, viz: the characteristic "wrist drop," or paralysis of the supinator muscles. Painters, and those whose occupation necessitates the constant use of lead, are the most frequent victims of such attacks. The peculiar blue line which is to be found on the gums of those affected is an evidence of the presence of this metal in the tissues. Acetate of lead given for ordinary medicinal purposes for a great length of time will produce the same occurrence. The strongest proof of such a contamination is deduced from the post mortem examination and chemical analysis, by which means lead is extracted from the affected tissues. The metal gets into the system from absorption by the skin or by means of the inhalation of its fine particles in the atmosphere which painters constantly

breathe. The mortality of such cases seems to bear a direct relation to habits of intemperance and long-continued exposure to the sources of infection. The pathological changes found are a pale, softened condition of the brain ; its convolutions are wasted, and the sulci between them are widened.

"*Peripheral Hemiplegia*" and "Creeping Palsy" seem to be much the same affections, or are so closely allied to each other that they may be described under the same head. The approach of the disease is stealthy and decidedly peculiar. Vague feelings of numbness are experienced on one limb or part of a limb, whilst at the same time the sensation of touch remains unimpaired for some time. "The disorder at this period appears to consist chiefly in the want of power to adjust the muscles for the *finer* movements, but not for the coarser actions ; after a time, however, more or less inability to accomplish the latter also comes on." The patient cannot pick up small objects, button his clothes, nor perform certain muscular movements requiring perfect and nice adaptation. In writing, his control over his pen soon becomes lost ; and the palsy known as Scrivener's palsy bears some analogy with the present subject. The lower extremity in time becomes affected in a similar manner, and the patient's gait is altered and stumbling. The mind long remains unimpaired. The malady being essentially chronic, this state of affairs may be prolonged for years. In some cases both sides of the body are affected at the outset of the disease, whilst in others one side alone attracts attention by the manifestation of these characteristic muscular phenomena. The disease is generally surely though slowly progressive, and things go from bad to worse ; towards the end the mind gives way and becomes impaired, whilst epileptic seizures are then not unfrequent. The term *peripheral* is applied to the disease from the fact that the first symptomatic evidences of functional impairment are to be found in those parts at a great distance from the

cerebro-spinal influence, and the primary indications are hardly those of centric origin.

"Epileptic Hemiplegia." Paroxysms of an epileptic nature are sometimes followed by hemiplegia. Such an occurrence, though rare, and generally transient in character, nevertheless does at times take place, and the physician being aware of such contingencies, is therefore not at a loss to interpret correctly occasional consequences of the fit. It is stated that the side which is most agitated during the convulsive seizure most generally suffers with the palsy, though the latter sometimes is developed when both sides have been equally convulsed. The hemiplegia may last a few hours or a few days, and in persons thus affected is prone to again manifest itself after the next paroxysm.

Chorea, like epilepsy, sometimes gives rise to *"Choreic Hemiplegia."* In this disease, however, we are better prepared for such a result, as in many cases "the choreic movements occur more on one side than on the other, and sometimes they are altogether confined to one side." Grave suspicions may arise in your mind as to the existence of positive brain lesion. But you will find the face and tongue unaffected, as in hysterical paralysis. Nor will any mental impairment throw additional doubt upon the diagnosis. The etiology of the affection might be explained by an atonic condition of the nervous system, resulting in complete neurasthenia, attributable to the prolonged chronic disturbances.

"Rheumatic Paralysis" sometimes manifests itself in connection with the rheumatic diathesis. Certain groups of muscles are generally affected. The rapidity of the development of this form of palsy is one of its characteristic features. All muscular movements of the affected parts are very *painful*, which, taken in connection with the enjoyment of full intellectual vigor, will obviate all diagnostic difficulties.

"Diphtheritic Paralysis." Many patients who have seemingly entered upon a perfect convalescence after an attack

of this dreadful disease, became palsied weeks afterwards. The palate and pharynx are usually first attacked, and this local palsy is oftentimes a forerunner of a more complete and general paralysis, which may become very appalling to the friends of the unfortunate patient. The development of the paralysis is frequently very gradual, and the loss of muscular power very complete and lasting, as the improvement is very slow, although the prognosis is in most instances favorable. The loss of muscular contractility is evidently due to a depraved nutrition of the nervous centers, the result of blood contamination. No brain symptoms are met with during the existence of diphtheritic paralysis, and hence it follows that functional and not organic causes are to be invoked in the explanation of its pathology.

"*Bell's palsy*" is a term applied to a paralysis of the portia dura of the seventh pair of cranial nerves. Sir CHARLES BELL's name is connected with this affection in consequence of his brilliant investigations of the course and functions of the aforesaid nerve. The palsy is strictly local in character; and as a motor nerve is principally affected, the muscles of the face supplied by it become motionless. The play of these muscles of course determines, to a great extent, the ever-varying expressions of the human countenance, and the appearances, under such circumstances, are very characteristic: "The eyelids are open and fixed, the features rigidly composed on one side of the face (for the disease is a one-sided one), and reflecting every change of feeling on the other." Sensation remains normal. Wounds, mumps, otitis, exposure to cold, are ascribed as causes of the palsy. The prognosis is not unfavorable. Inability to close the eyelids or a paralysis of the orbicularis palpebrarum will be an important differential test when it is necessary to distinguish this facial palsy from that following upon serious brain lesion. The absence of anæsthesia, cephalalgia, mental impairment, and the strictly local character of the palsy, will likewise enable us to make a satisfactory diagnosis.

I had hoped to say a few words in reference to "Progressive Locomotor Ataxy," "Infantile Paralysis," and General Paralysis of the Insane; but, for want of time, will be compelled to make them the subject of our next lecture.

ON FRACTURES.

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I.

In speaking of or in treating fracture, the surgeon is too much in the habit of regarding it as simply a lesion of bone, and we are consequently taught and practice their adjustment and retention in situ, as a mechanic would retain the fragments of a broken timber together; or more, as a sailor would splice a yard-arm or a spar.

It is very clear to one who has practiced surgery thoughtfully, that the skin, muscles, nerves, blood vessels, fascia and periosteum should be considered when we attempt to treat a fracture; also, the relations of one bone to another in reference to the site and character of fracture. We will, then, speak of these several structures before referring to the bone itself:

1. *The Skin*.—This is the pliable, somewhat elastic fibrous envelope of the body; contains nerves and blood vessels, more or less abundantly supplied with sebaceous and sudoriferous glands, and beset with hair. This skin as a whole bears indefinite or varying relation to the parts beneath, with which it is connected by a more or less abundant layer of areolar tissue, which may or may not be loaded with fat, the quality of which varies with the age, the sex, and the part of the body. From the fact that it contains the peripheral terminations of the sensitive nerves, it responds readily in pain to violence, either momentarily or continuously applied, and this, together with its free

vascular supply, indicates the rapidity of its normal changes, as well as its susceptibility to violent pathological disintegration. If the areolar tissue connecting it to the firmer parts beneath (as bones and fasciæ) be short, it furnishes a good point for making extension or counter-extension, and unfits it for the pressure of lateral supports. On the contrary, when loose, long, and abundantly loaded with fat, it furnishes a good surface for lateral supports, and from its capability of sliding on the parts beneath, unfits it for a point of extension. When separated only to a limited extent from resisting parts beneath, ulceration and mortification occur from trifling and temporary pressure, indicating the practical necessity of so padding lateral supports as to prevent pressure at these points. Other tissues, also, nearer bone than the skin, may suffer absorption, ulceration, and death from external pressure applied through lateral supports to the projecting angles or points of broken bones. These do suffer, and it should be borne in mind in our attempts to replace and maintain in coaptation the uprising ends of fractured bones. In children, but more especially in the aged, the skin should be well guarded; in the young subject because of its great sensibility, and the aged from its feeble vitality. Something may be done in both cases to prevent the ill effects of pressure by frequently removing it; and using friction to the parts in the old to determine an increased quantity of blood to the ill supplied parts, and in the young to tan or harden the part by applications of tannin, alum, borax, alcohol, etc., etc. It will, however, be observed that inflammation does not occur in those parts of the skin most pressed upon, but in the parts immediately surrounding these; for there the normal quantity of blood cannot reach the skin, and inflammation is expressive of increased change, and this increased change cannot occur without increase of blood; hence, if we wish to prevent death of the skin from pressure, we withdraw the pressure that the blood supply may be more complete. When absorption, ulceration, or death does occur in the skin from

pressure, the entire removal of all pressure from the parts directly involved and those immediately surrounding becomes imperative, and stimulating applications should be made with the view to elevate the lowered vitality of those parts not already dead, not only to prevent them from dying, but also to enable the living to separate from the dead.

2. *The Muscles.* — These locomotory organs of the body bear, both anatomically and physiologically, important relations to fractures. Thus we find the stronger muscles where there is relatively less leverage to favor their force of action, and weaker muscles where leverage most favors force of action. The varying points of attachment of muscles to bones renders it possible for muscles to draw the fragments out of the line of normal relation, and thus produce and maintain displacements.

Thus it is found when a fracture occurs just above the attachment of the gastrocnemius muscle to the femur, that the lower fragment is drawn backward. Again, if the fracture be just below the trochanter minor, the upper fragment is drawn forward; or, if below the trochanter major and minor, the upper fragment would be drawn outward by the gluteus medius and minimus. We might give illustrations to an almost unlimited extent. Now, muscles are endowed with and exercise a constant tonic contraction, which would, if they were not resisted by opposing muscles, or some other power, cause abnormal positions in the limbs. Thus paralysis of the external rectus results in convergent strabismus. Paralysis of the gastrocnemius and soleus muscles furnish us with a case of talipes calcaneus. In addition to this tonic contractile power of muscles, they are capable of being excited to unusual action by direct irritation, or by stimulation applied to remote parts and transmitted to the muscle through nerves.

Now it is obvious that in our attempt to replace the broken fragments of bone, and to retain them in their normal relations, we must take into consideration these character-

istics of muscles, and find some means by which we can control or neutralize both the spastic contractility of muscles, and their capability of more violent action under the abnormal stimulation. We must exhaust their irritability or remove the stimulant to action.

If some force can be applied that will counterbalance the excessive contraction of muscles, that force would, if applied in a proper direction, replace a broken bone and maintain the fragments in position, and this is precisely what is done whenever and howsoever the fracture is reduced and retained in position.

3. *The Blood Vessels.*—These are the agents of transportation by which the various parts (bone among them) are supplied not only with the materials to supply the waste which is constantly going on in the tissues, but by which the materials are furnished for the repair of injuries. Now, in the normal adjustment of parts the vessels are just large enough to carry the proper amount of blood for the support of tissue; but if repair is required, the vessels dilate so that the additional amount required may reach the site of injury. The amount of blood passing through a part to some extent determines the capability of repair, and this may be favored or checked by position, motion, nervous supply, etc., etc. Position should be such not only as will favor a flow to a part, but also to favor its return from the part undergoing repair. Motion of the fractured part cannot be permitted for obvious reasons; but the greater the motion allowed other parts, the better will be the circulation. A supply of nervous influence should be solicited, so that vascular supply shall be as complete as can be obtained. Let the limb, therefore, be not too much elevated or too far depressed, lest, on the one hand, we diminish supply, or, on the other, prevent return. So arrange the dressings as to allow the patient motion in all parts except at the site of fracture. Let no dressing be so applied as to mechanically diminish the caliber of the blood vessels, or at least insist that the diminution be in minimum degree.

4. *The Fasciæ.*—The compact fibrous sheaths of the extremities are known as fasciæ. These vary much in their thickness and strength, but are invariably made of fibrous tissue of the white variety, and are consequently inelastic. They are attached to the ends of bones, and form, by septa or partitions passing to the deeper surfaces, in many instances complete cases for the bodies of muscles, and are even projected sufficiently deep into the limb to form continuous membranes with the periosteum. These fasciæ will be found very thick and strong on the outer and anterior part of the leg; also on the posterior aspect of the same part, covering in the deep muscles of this part, and firmly attached to the upper and lower ends of the tibia and fibula. So, also, on the posterior aspect of the forearm it is dense, having similar attachments to the lower ends of the bones of the forearm, and above to the ulna and the condyles of the humerus. On the anterior part of the forearm the fibrous layer is well formed, and besides, a dense layer of the same material intervenes between the bones, extending from one end to the other. On the posterior part of the arm there exists also a strong layer of fascia continuous with that of the fore arm at the elbow, and connected above with the spine of the scapula and its acromion process. The fascia of the thigh is particularly well developed on the outer side, being attached above to the crest of the ilium and continuous below with that of the leg at the knee. Now, it will be found that all these fasciæ are tense when the limbs are in certain positions, and also that those positions which render them tense are precisely those in which the extensor and flexor muscles are equally relaxed.

I conceive a knowledge of the anatomical relations of these fasciæ to be of great importance in the treatment of fractures; for if they can be kept tense and the flexor and extensor muscles neutralize the one the other in equal states of relaxation, the bones must bear proper relation to the other components of the limb, and the fragments of fractured bones, when they are not complex, must be in

apposition. They also prevent the possibility of too great extension of a fracture, if proper precaution be taken in regard to the degree of flexion of the joints above and below the point of fracture.

5. *The Periosteum.*—This is the fibrinous membrane directly enveloping the bone containing the blood vessels which pass to the bone, and in this relation becomes important to the repair of fractures—so important that its preservation is absolutely necessary to the preservation of the vitality of the bone. The membrane also furnishes the germs not only for the growth of bone, but also for the repair of injuries done it. Hence the importance of preserving the periosteum in fractured bones. When in cases of comminution a part of the bone tissue must be removed as foreign matter, and when sharp, angular and denuded parts must be removed, the periosteum should be scrupulously preserved.

In simple fractures the periosteum may not be broken through in any part, and would, under these circumstances, serve to hold the fractured surfaces nearly or quite in contact. Rude manipulation for the purpose of determining the site, character, etc., of fractures, should be avoided, lest the periostial connections still remaining after such an injury be severed. Deformity and mobility being recognized in a case of injury in the continuity of a bone, it is not required that our patient should be tortured to produce the characteristic crepitus.

The continuity of a part of the periosteum of a fractured bone being preserved, there is little danger of any other than angular deformity. Lapping or other great displacements are not likely to occur, and the probabilities of union are much greater than if this membrane was much torn from the fractured ends, or its continuity extensively disturbed.

6. *The Endosteum, or Medullary Membrane.*—This membrane serves the same purpose for the inner surface of medullary cavities that the periosteum does for the outer,

so far as its germ-furnishing or blood-supplying functions are concerned, but cannot—as it is an exceedingly delicate tissue—give as firm mechanical support as will the periosteal layer.

7. *Bone*.—While bone is the structure that chiefly suffers in fracture, it also performs an important part in the repair of its own injuries. In it are blood vessels which carry the materials of repair. Like periosteum, the bone appears also to supply germs for new deposits in fracture. To preserve every fragment capable of maintaining its own vitality therefore becomes a matter of importance, and every one having periosteum coverings over its entire exterior will probably live. This being true, the surgeon cannot be too careful in preserving all the parts of bone in compound comminuted fractures, where extensive connection either by bone or soft parts are present. Exsections in continuity should be avoided in every case where the parts are not sure to perish, and the surgeon can never be sure a fragment of bone will die unless it is entirely free, or only hanging by a shred or attached by a point. The conservative surgery that recommends resection in continuity is not conservative. If blood vessels and nerves are preserved, almost any degree of comminution of bone will admit of repair. Bone nippers, chain saws and respiratories are dangerous instruments, and should not be too frequently allowed out of their cases. Resection may be better than amputation, yet it is very much worse than non-interference.

[To be Continued.]

FIG. 3.

a

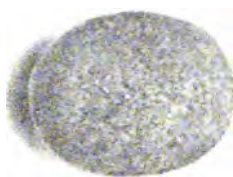
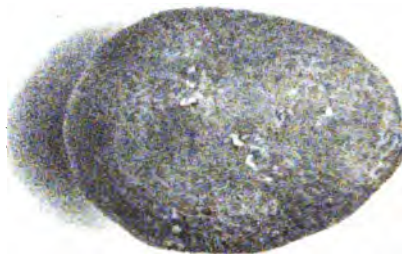


FIG. 1.



b

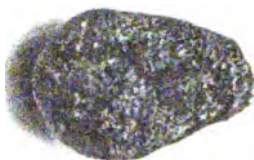
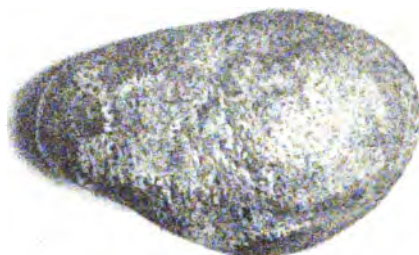


FIG. 2.

a



c



b



d



CONTRIBUTIONS TO LITHOTOMY.

By LOUIS BAUER, M.D., M.R.C.S. Eng., Professor of Surgery in the
St. Louis College of Physicians and Surgeons, etc.

I.

*On Recto-Vesical Section, with Case successfully operated
upon by this Method.*

Among the different anatomical avenues by which the urinary bladder of the male adult may be approached for the purpose of removing calculi, none seems as available as that through the recto-vesical septum, immediately behind and above the posterior border of the prostate gland.

In viewing the pelvic viscera in situ and in the profile division, it is observed that the bas fond or base of the bladder rests upon the anterior wall of the rectum, the two being connected by areolar tissue. At this place the rectum takes a forward and downward course. "The prostate gland is placed immediately in front of the neck of the bladder around the prostatic portion of the urethra, its base being turned backwards and its under surface towards the rectum. The longest diameters of this gland are in the antero-posterior direction, and transversely at its base; and hence the greatest extent of incision that can be made in it, without dividing its substance completely across, is obliquely outward and backwards. The relations of the prostate to the rectum should be noticed. By means of the finger introduced into the gut the surgeon readily detects enlargement or other disease of this organ. Behind the prostate is the posterior surface of the neck and base of the bladder, a small triangular space, bounded in front by the prostate gland, behind by the recto-vesical fold of the peritoneum, on either side by the vesiculæ seminales, the vasa deferentia, and separated from the rectum by the recto-vesical fascia. In cases of retention of urine this portion of the organ is found projecting into the rectum between three or four inches from the anus, and *may be easily perforated during life without injury to any important parts.*"—
(Henry Gray.)

In boyhood the peritoneum descends deeply into the pelvic cavity and exceptionally down to the prostate. According to the late Dr. ISAAC, of the University Medical College of New York, a similar distribution exists in negroes, irrespective to age. In the male adult the peritoneum does not cover the entire posterior surface of the bladder; the base of the latter remains free to a greater or less extent. MALGAIGNE estimates the space from the reflection of the peritoneum to the prostate gland 1 1-4 in. Accurate measurement by myself, instituted after filling the bladder, rectum and abdominal cavity, with differently colored plaster of Paris, clearly shows that the length of the uncovered space varies from 1 3-8 to 1 3-4 in.

From an anatomical point of view the best place to enter the bladder would be through that portion of the rectum which corresponds with the base of the prostate.

In proceeding in this direction we pass through structures of no great vital significance, and so elastic as to admit of considerable dilatation without danger of laceration. I cannot conceive the probability of hæmorrhage. The venous plexus of this locality is not of the same magnitude as in the female, and the hæmorrhoidal arteries may be pushed aside and out of the line of incision, as I have succeeded in doing in the case under my charge.

The intrinsic advantages of recto-vesical section are manifold:

1. The access to the field of operation is unobstructed. Patients afflicted with lithiasis for some time usually exhibit the collateral symptom of prolapsus recti, which implies a relaxed condition of the sphincters. This state of the rectum greatly facilitates the operation in affording the requisite space. In retracting both the posterior wall of the gut and the os coccygis by SIMS' speculum, the cavity is proportionately enlarged and illuminated. If the sphincter ani should be exceptionally irritable and spastically resists the introduction of the speculum, anæsthesia, eventually posterior division of the same will remove the difficulty.

2. The operation is entirely painless, quick and decisive.
3. The structures implicated in the wound are so yielding as to allow the extraction of a large calculus through a disproportionately small opening.
4. The position of the stone is generally at this very place of the bladder, and can therefore be readily grasped and removed.
5. Fragments of stone and gravel can be more readily washed out of this place, being the lowest of the bladder.
6. The wound can be readily and so hermetically closed as to preclude the escape of urine from, or the entrance of intestinal gas or feces into, the bladder.
7. The simple composition of the tissues involved favors union by first intention, which generally may be relied upon.
8. With the exception of an insignificant recto-vesical fistula, scarcely anything else can happen to mar the perfect recovery of the patient, and this is susceptible of permanent relief.

These are advantages which cannot be claimed for any other method of lithotomy, as I shall endeavor to show by a just and unprejudiced comparison.

The high operation approaches nearest in facility, benefit and directness to the plan under consideration. The access to the bladder above the pubic symphysis is equally easy, and the structures through which the incision passes of inferior vital importance. The bladder is likewise opened at a place not likely to disturb the functional work of the organ. It is equally possible to remove a larger stone through a small wound, from the same physical condition of the bladder. If recovery ensues at all it is generally unconditional. In childhood the *sectio alta* is perhaps the most available, from the fact that a portion of the anterior wall of the bladder lies immediately behind the abdominal parietes, without interposition of peritoneum.

Withal, the statistics of this operation are by no means encouraging. Notwithstanding the most skillful management on the part of the surgeon, urinary infiltration in the

pelvis, with inevitable fatal consequences, are by no means rare occurrences. In adults the high operation is, from anatomical reasons, impracticable, and should not be resorted to except under most extraordinary circumstances. To the imminent danger of urinary infiltration is superadded the wounding of the peritoneum. No surgical skill, nor the utmost precaution, are sufficient protection against so serious an accident. Besides, the bladder is so difficult of access at an advanced age that but few experienced surgeons can be prevailed upon to risk the life of their patient and their own fair reputation in this enterprise.

In comparing the practical value of the recto-vesical section with the infra-pubic method, I am fully aware that I shall have to contend with a deep-rooted favorable prejudice on the part of the surgical profession, which I scarcely feel able to remove by the assurance that no surgeon can hold it in higher estimation than myself, and that I am fully sensible of both the wonderful technical improvements and marvellous successes achieved for this operation in our time. Indeed nothing lies farther from my design than the depreciation of the infra-pubic operation, the merits of which are deeply engraven upon surgical history.

All I do propose is to obtain a fair hearing for a method which has been strenuously if not culpably ignored.

Mr. GRAY informs us in his excellent work on Anatomy that the infra-pubic operation successively concerns the following parts: "The tegument, superficial fascia, external hæmorrhoidal vessels and nerve, the posterior fibres of the accelerator urinæ, the transversus perinei muscle and artery (and probably the superficial perineal vessels and nerves), the deep perineal fascia, the anterior fibres of the levator ani, part of the compressor urethræ, the membranous and prostatic portions of the urethra, and part of the prostate gland."

This complex of anatomical parts indicates at once a formidable operation, which no skill and surgical adroitness can possibly simplify. I will pass over in silence the

minor accidents that may happen, as in fact they have occurred before, for instance the wounding of the pudic artery and that of the bulb, which give considerable trouble in closing, but will confine myself exclusively to the difficulties arising from the passage of the calculus through the prostatic portion of the bladder.

It is obvious that the latter must be considerably enlarged to permit the extraction of a stone. The prostate is unquestionably dilatable to a certain degree; at any rate sufficiently dilatable to allow the unobstructed passage of a smooth and moderately sized marble, say of 5-8 inch in diameter. However careful and by whatever means the dilatation may be made, it seems that the mucous membrane at the neck is more or less injured and lacerated. I have been but lately present at such an experiment, in which the index finger was gently employed as dilator. The object of the experiment was fully accomplished, and the marble readily extracted, but on subsequent inspection of the parts concerned, the mucous membrane presented the injuries before mentioned, and I was informed that the same had occurred on previous trials. Hence it is usually deemed necessary to incise at once the prostate, and thus gain the requisite passage way for larger sized calculi.

According to the views of Mr. GRAY, the bilateral incision of that gland should not exceed an inch in the aggregate, lest danger might accrue from exceeding the amount. Now it is obvious that a large sized calculus, especially when rough on its surface, as the mulberry stone, cannot pass without opposition, and if the extraction be forced, grave consequences must necessarily ensue. Of course prudent and experienced surgeons will not risk lacerations through the prostate into the deep pelvic fascia, and jeopardize the lives of their patients. They will rather crush the stone within the bladder, and extract it piecemeal, which may be effected without risk, or in failing they will have the moral courage to cut short the operation and leave the calculus in its place. But not every surgeon possesses

sufficient *sang froid*, judgment and discretion, to resign the task, and then woe to the poor sufferer! I remember with horror and I may say with indignation a case of lithotomy performed not long ago by a prominent professor of surgery, who committed this very act of ferocity, which consigned his patient to the grave. He was even so heartless as to flourish in triumph the forceps, which he had bent and twisted in the operation.

I am fully sensible that the abuse of an operation does not furnish an argument against its proper use. Nor are such extremes necessary to demonstrate the danger arising from laceration of the prostate gland, for they have happened under circumstances more excusable, and are therefore of more common occurrence than is generally supposed.

But, and irrespective of this serious accident, there are other drawbacks and inconveniences attending the infra-public operation. One of these is the surgical inability of closing the wound in any other way than by suppuration, nor of protecting it against the constant irrigation with decomposing alkaline urine, which protracts the healing, and converts the wound but too frequently into a urinary fistula. In fine, incontinentia urinæ is one of the incidents of recovery from this operation.

It will thus be seen that infra-public lithotomy is not quite as serene in its ulterior results as its enthusiastic advocates make it appear, and the least they should feel disposed to concede is an earnest consideration and trial of the recto-vesical section.

Whether lithotrity is seriously endangered by the competition of recto-vesical section I do not venture to say, for I have no personal experience of CIVIALE's ingenious invention. Judging, however, from the doings and achievements of savants in this line of surgical practice, it would seem to me that the recto-vesical section, if fairly estimated, would stand a good chance to be preferred. The former requires for execution an amount of dexterity and practice

which but few surgeons can attain. The operation must necessarily be limited to a few surgical hands in large cities, where the patients congregate in large numbers. These operations are usually confined to private patients able to return *quid pro quo* for the valuable time of the surgeon. But once in a while lithotripsy in all its stages is exhibited to students, and for some reason or other these cases very seldom are so brilliant in their final results as in private practice. Withal, no inconsiderable mortality attends the lithotritic operation, only with this difference, that the patients are always said to die from some extraneous cause entirely disconnected with the operation. Such a case but lately happened at Vienna, under the charge of one of the most competent surgeons of Germany (Prof. BILLROTH), and was subsequently the object of judicial cognizance. The autopsy, made at the Pathological Institute, under the auspices of ROKITANSKY, disclosed a widely different cause of death from that assigned in the certificate, namely, extensive laceration of the coats of the urinary bladder, with peritonitis.

Now, if such deplorable accidents can occur and be overlooked in the management of so distinguished a practitioner as BILLROTH, it is but fair to presume that the operation in question is of grave importance and responsibility. That the danger of relapse is much greater after lithotripsy than lithotomy is admitted on all sides.

The futility of some of the objections raised against the recto-vesical section I have already exposed. Others pertain exclusively to the methods of VACCA BERLINGHIERI, GERI, and others, with which I do not intend to deal critically, as they do not belong to the subject at issue. Moreover, it should be borne in mind that the later advancement of surgery and the improved technical execution of this kind of operation have rendered it infinitely safer and more reliable. Nevertheless, two arguments are put forth against this operative proceeding which cannot be slighted, and shall therefore find due consideration.

One of them is the almost inevitable wounding of the vas deferens. This argument may be valid if the opening of the bladder be undertaken without previous preparation. I believe myself it would be difficult to obviate the accident. But if the bladder be distended by water, and its escape prohibited by placing an India rubber ring over the penis, the corpus trigonum thus laterally enlarged and the incision made accurately in the median line of the organ, it would seem absolutely impossible to injure the vas deferens. In the experiences at operations of this kind which I have repeatedly performed upon the dead subject, and in the case of TITUS, I have certainly succeeded in avoiding the seminal apparatus, as subsequent anatomical inspection of the former and the well-being of the latter affirmed.

The other objection refers to the wounding of the peritoneum. As far as I could learn from literary research, only one case, namely, that of GÉRI, has been brought forward in evidence. Unfortunately, the original statement of that surgeon has not been at my disposal. I am therefore at a loss to judge whether the patient was a boy or adult. In the former the operation would have been ill-conceived and reprehensible on anatomical grounds; in the latter GÉRI must have either seriously blundered or neglected to suitably prepare the bladder. At any rate I have shown that there is sufficient space at the base of the bladder free from peritoneal covering for a wound of from 6 to 9 lines, and a larger one is not needed.

Although injury to the peritoneum must be considered as a great aggravation, and should be avoided by prudent management, nevertheless it may possibly happen without the slightest indiscretion on the part of the surgeon. In this case the damage is susceptible of repair by metallic suture analagously to other operations upon the abdominal cavity, and the prophylactic action of opium.

Notwithstanding all the slurs and ill-concealed contempt which has been so liberally bestowed upon recto-vesical section that modern authors on surgery have not even

condescended to mention it, the practical utility of this operation has been virtually proven beyond dispute and exception. No surgeon ever hesitates in accepting and performing lithotomy in females through the vesico-vaginal septum, and the results of it have been satisfactory to all parties. At least I am not aware that any serious objections have been raised in depreciation. And yet, is there any material difference between the vesico-vaginal and the recto-vesical lithotomy? I think not. The parts involved are analogous in anatomical composition; the technical execution is the same in either operation. Why should the results differ from each other?

The history of recto-vesical section is rather unsatisfactory in this respect, that it encompasses a great amount of material which has no bearing whatever upon the character of the operation at all. As a matter of course the ancient Egyptians were already familiar with the recto-vesical section, as in fact with any other modern proceeding in surgery. But for the famous conflagration of the inestimable library at Alexandria, we should surely be in possession of the most valuable historical records. VACCA BERLINGHIERI labors very hard to prove that VIGETIUS (1574) had not the remotest conception of this method, which, if he had, would scarcely be of great importance to the 19th century. It is even doubtful whether CHRISTIAN FREDERICK HOFFMANN (1749) realized its value as a method when he advised to cut down upon the stone through the rectum, or did not merely intend it as a contingency under exceptional circumstances. SANSON (1817) proposed and practiced recto-vesical section methodically, although his execution was exceedingly crude and hazardous. Not even the influence and favor of DUPUYTREN, his preceptor, sufficed to render it acceptable to the profession. Most objections raised against recto-vesical section are appropriately applied to SANSON's proceeding. He cut through the anterior wall of the inferior portion of the rectum, inclusive of both sphincters, exposing thereby part of the

membranous portion of the urethra and the prostate, and proceeded thus to the base of the bladder, which he opened. I do not wonder that his success was but meagre. Almost all modifications of SANSON, VACCA's included, adopted the first incision, but then opened the urethra and entered the bladder in front of and through the prostate. They are consequently recto-urethral operations, but by no means recto-vesical sections, and must therefore be excluded from the consideration of this subject.

The only feasible and direct plan in the performance of recto-vesical section has been suggested and a few times practically executed by W. W. SLEIGH (1826), an English surgeon of moderate pretensions. He was at the time surgeon in charge at Newgate, where the first operation of this kind was performed upon a prisoner. The technical execution of the operation corresponds in the main with that to which I resorted in the case of TITUS in the year 1859. I feel persuaded that if the same suggestion had emanated from one of the surgical luminaries of his time, recto-vesical section would to-day rank much higher.

In the years 1832 and 1835 the late Prof. BLASIUS, of Halle, had collected ninety-eight cases, said to have been operated on by the so-called recto-vesical section. That these statistics are of no avail may be easily inferred from the fact that he adduces but six cases in which the bladder was entered behind and above the prostate gland. In my opinion, these statistics of recto-vesical section, when computed at a future period, will show an unprecedented result of success, for I cannot persuade myself that the surgical profession will persist in ignoring any longer an operation so simple, so readily performed, and to all appearance so beneficial to a large class of patients suffering from calculus.

CASE.—In the summer of 1859, Mr. JAMES TITUS asked my advice for some chronic trouble in micturition, from which he had suffered nearly three years. The exploration of the bladder disclosed urinary calculus. Being 26 years old, of good constitution, and an individuality favorable

to a virtually new operation that might possibly test patience and docility, I recommended to him recto-vesical section as the most appropriate method for removing the stone. He consented and adhered to this with manly resolution, notwithstanding the professional opposition with which the proffered plan met from other parties. Intelligent and quick of perception, and of an inquisitive mind, he was permitted to take a part in the preliminaries at the dead-house, and submitted to the repeated examinations with an interest far beyond his individual concern in the issue.

Unable to find much practical information on the subject, I had to mature every step in the proceeding myself. My task was, however, greatly facilitated by the generous coöperation of my distinguished friend Dr. MARION SIMS, to whom a new and fruitful field of surgical exploit was thus opened, and the value of whose surgical improvements was to be extended.

Having fully ascertained the practicability of dilating and illuminating the rectal cavity, and the accessibility of the posterior border of the prostate gland, and finding but a minor artery preoccupying the line of incision which could be displaced, I proceeded with the operation in the forenoon of the 18th of July. Quite a number of prominent medical gentlemen had congregated for the purpose of witnessing the operation, in which they seemed to take a special interest. Of these Drs. SIMS and THOS. ADDIS EMMET lent me their valuable assistance.

The patient was easily prevailed upon to dispense with chloroform, and support our endeavors by steadily preserving the adopted position. The rectum was kept open by SIMS' larger speculum. The contours of the prostate gland were well exposed, and by the guide of the left index finger *I transixed the recto-vesical septum immediately behind and at the middle of the base of that organ.* This part of the operation was performed by a double-edged scalpel. The blade being about 1-2 inch in width, the wound by necessity could not have been larger. *The loss of blood was trifling, and no pain was experienced by the patient.* In fact, he stated that the first intimation he had received of the progress of the operation had been from the finger in the bladder. The extraction of the calculus was effected by a common polypus forceps without impediment. The elasticity of the recto-vesical septum obviously exceeded the requirements of the case. Dr. SIMS acceded to my request in closing the wound with silver-wire sutures, and so effectually did he accomplish the task that not a drop of urine escaped during the entire after treatment.

This operation occupied but a short time, and the patient suffered only from the fatiguing position.

As soon as the patient had been placed in bed, an elastic catheter was inserted to drain the bladder, a suitable dose of opium in substance administered, rest enjoined, and light and fluid nutriment allowed.

July 18th, 6 P. M.—Patient comfortable; urine discharging freely; slight traces of blood detected; acid reaction; moderate effect of the opium; dose repeated every four hours.

July 19th, 2 A. M.—Suddenly called to visit the patient. Catheter obstructed and flow of urine stopped. Some tenderness in the bladder;

no febrile excitement. Drew off about $\frac{3}{4}$ v of water; left a new catheter introduced. No moisture about the anus.

July 19th, 10 A. M.—Patient had rested well for several hours; condition satisfactory; moderate discharge of urine through the catheter, with considerable quantity of uric acid and traces of triple phosphates, mucus, epithelium and vibriones. Opium continued; milk diet, with bicarbonate of soda.

July 19th, 6 P. M.—Had slept twice; pulse quick; 1 1-2 pints of urine since morning. There is no uneasiness in either bladder or rectum.

July 19th.—Late at night was sent for to relieve retention of urine from stoppage of catheter; having withdrawn $\frac{3}{4}$ ix, washed bladder out with warm water.

July 20th, 7 A. M.—Three hours sleep; had discharged $\frac{3}{4}$ xix of urine. Two hours before my arrival catheter had slipped out; patient very uneasy. Took $\frac{3}{4}$ viii from the bladder. Irritability of bladder so great as to eject the urine several feet. Noticed more mucus and some pus; slight acid reaction; when boiled becomes turbid without entirely clearing up by nitric acid, hence albuminous. Treatment and diet continued.

July 20th, 6 P. M.—Tolerably well; flatulence relieved by rectal tube; no leakage through the wound; discharged $\frac{3}{4}$ xxii of urine; sigmoid flexure distended and tender. More opium.

July 21st, 10 A. M.—Appetite and sleep good; local condition satisfactory. During last night the catheter was displaced; urine had accumulated for several hours without trouble. Towards morning the patient had succeeded in replacing the instrument and relieving himself.

July 22d, 9 A. M.—Urethra tender; slight traumatic gonorrhœa. Removed catheter; directed its reintroduction with intermissions of four hours, eventually to send for me.

July 23d, A. M.—Had drawn his water as often as directed. Treatment same; beef tea allowed.

July 24th, A. M.—Has rested well; failed in introducing the catheter; could not restrain himself from passing urine *per vias naturales*. Some uneasiness about the bowels. Has collected about one quart of urine; the latter contains mucus and pus, and ferments readily.

July 25th, 2 1-2 P. M.—Most of the physicians who were present at the operation have again assembled to witness the removal of the sutures and to take cognizance of the state of the wound. Patient receives them out of bed and declares himself fully contented with the results thus far obtained. He passes his water with perfect facility; looks, however, pale and somewhat attenuated. Being again placed on the table and in the previous position, and the speculum inserted, the rectum is found to be filled with soft feces. After these were carefully removed by warm water injections and sponge, the wound is exposed. The surroundings present a healthy appearance; the sutures are loose, without cutting into the tissues or causing ulceration of the stitches. When these were carefully removed the wound was found securely united, no fistulous opening being left.

On the following day I exhibited the patient to the venerable VALEN-

TINE MOTT, of New York, who had manifested great interest in the case. Being made fully acquainted with the details, he expressed his entire satisfaction with the result of the operation, and his intention to test its practicability himself at the earliest opportunity.

Having resided for many years in the same city (Brooklyn) with the patient, I have often met him since, and satisfied myself of the enduring good results of the operation, marred by no inconvenience whatever.

REMARKS.—To my knowledge of the literature on the subject, there is no case of lithotomy on record in which the recovery of the patient was more speedy or perfect than in the present instance. Nor could any patient have suffered less inconvenience from the operation than Mr. TIRUS. Unquestionably he was in every respect a well fitted person for the operation, a circumstance not to be underrated in the favorable issue. His anxiety to be relieved was as great as his personal attachment to his attendant. Certainly no patient followed my directions with greater punctitiousness than he. Moreover, I had the rare privilege of being assisted by the most skillful surgeons in this line of practice, not less interested in the termination of the enterprise than myself, and to them as much, if not more, credit is due. Irrespective of all the advantages at my side in the present instance, I am inclined to think that the operation is so rational and feasible as to bid fair of success in hands less skillful and proficient, as experimental operations upon the cadaver demonstrate.

In the adjoining plate (Fig. 1) the reader may find a full-sized illustration of the stone removed in the case of TIRUS. Being completely dry, the weight of the calculus—720 grains, Troy—is much less than in the moist state. When grasped by the same forceps employed in the operation, its circumference in the smaller diameter measures 3 3-4 inches by a length of 2 1-4 inches, width of 1 1-2 inch, and 1 inch in thickness.

The simple fact that this stone was extracted from the bladder through a wound not larger than about half an inch, speaks volumes in favor of retro-vesical section.

II.

Vesico-Vaginal Lithotomy—Hour-glass Contraction of the Bladder, the Calculus acting as a Valve—Peculiarity of Symptoms arising from this Condition—Recovery.

The patient concerned in this case is a middle-aged woman of good constitution, health and habits. Though she has led a laborious life she has hardly ever before suffered from sickness.

Her present trouble commenced three years ago with a catarrhal affection of the bladder, for which she was attended by a competent physician, but without any permanent relief. Exposure and error in diet would subject her to a return of the original symptoms. The urine was, however, never clear, exhibiting considerable deposit and a very offensive odor. During the entire period she has never been entirely free from pain, more especially in the supra-pubic region, extending to both sides,

which she presumed to be colic, and ascribed to habitual constipation. From the fact that she could void her bladder without any inconvenience, her immediate advisers seemed to have dismissed the suspicion of lithiasis; nor were the frequent micturition of small quantities, attended by the desire of passing more urine, or the fullness of the supra-pubic region considered inconsistent with the diagnosis in the case.

When in November my friend and former pupil, WILLIAM FUERGANG, of East New York, was called in, he noticed the great distension of the bladder remaining unchanged after the passage of urine. He deemed an exploration necessary. Introducing a catheter to the ordinary depth but a few drops of urine followed, and in moving about with the instrument he not only discovered an empty space, but likewise the grating upon a hard and rough surface. The examination was attended by considerable pain. At this juncture I was invited to see the case with Dr. FUERGANG, when I had an opportunity of confirming his observation.

The diagnosis of a urinary calculus was thus rendered unquestionable, but we did not find it equally easy to determine the size and shape of the stone. In order to reach it at all, I had to depress the handle of the sound, and then I could only circumscribe a limited surface. The calculus evidently did not occupy the usual place at the base of the bladder, nor could I dislodge it from its abnormal position. In this attempt a large quantity of urine was discharged, and with it the supra-pubic distension became notably diminished. I must candidly confess that I was utterly at a loss to account for the phenomena; and without the subsequent operation they would have remained a mystery to me to this very day.

The patient being made aware of the nature of her trouble, consented readily to the proposed operation, which I proceeded with after having duly prepared her system. Besides the attending and several other physicians, Drs. JACKES and WACKERHAGEN were present on the occasion, the two latter assisting.

The patient was placed upon a table, and in the same position which Sims has recommended for the operation of vesico-vaginal fistula, *i. e.*, on the left side of the hip, with limbs drawn up, and the chest flat on the table, which exposes more perfectly the field of operation than any other. The posterior wall of the vagina and os coccygis being retracted by Sims' vaginal speculum, I entered the bladder at its base, and in the median line, through an incision of about 3-4 of an inch. But a small quantity of urine escaped through the wound, notwithstanding that the vertex was considerably distended by liquid. By introducing my finger through the wound I came first into an empty space, which may have had the capacity of a middle-sized orange when distended. In passing in an upward direction, I felt the stone closely embraced by the contracted bladder, barely exposing a sufficient surface to grasp it. From all I could gather by the feeling of my finger, the coats of the bladder were considerably thickened and rather unyielding. It was with considerable difficulty that I could apply the forceps at all, and they slipped off repeatedly before I succeeded in disengaging the calculus. Although I proceeded with due precaution and gentle tractions, being

tolerably well apprised of the condition of the bladder, yet I do not doubt that I injured the mucous membrane, as the copious flow of blood attested. In the very moment that the calculus had passed, as it were, into the lower compartment of the bladder, a considerable quantity of urine poured through the wound, of course tinged by blood. The elimination of the calculus through the incision in the vesico-vaginal septum, was the next difficulty I had to encounter, which indeed was very great, and attended by the constant apprehension that from the large size of the stone the structures involved might tear. Fortunately my fears were not realized, for I succeeded in escaping that danger by fixing the smaller portion of the stone in the wound and by carefully pushing its margins gradually back. This manœuvre was effected by the handle of the scalpel. The hæmorrhage from both bladder and wound was not inconsiderable, and required the use of ice and ice water injections into the former.

In examining the bladder I then ascertained its peculiar pathological conditions, which had given rise to a group of symptoms, rarely observed in connection with urinary calculus. There was a constriction of the bladder which divided that organ, as it were, into two compartments, of which the superior compartment was by far the larger. The latter was pointed towards the constriction in a pear shape, which corresponded with the form of the calculus that had occupied this locality. The constriction itself was not long, perhaps a quarter of an inch, almost circular, and allowed the finger to pass readily, obviously distended by the passage of the stone. Whether one or both the ureters opened into the lower compartment, is of course difficult to decide; whereas it is transparent how this mechanical arrangement acted in reference to micturition. Probably the urine first entered the lower compartment through the ureters, and when filled could easily get into the upper division by merely elevating the calculus, whereas the urine could not as easily return into the lower, being prevented by the valvular action of the stone. In the recumbent posture of the patient, the water descended probably more readily into the lower space, else it would be incomprehensible that the bladder did not rupture.

When the bleeding had completely stopped, four silver sutures were inserted through the entire thickness of the septum, including the mucous membrane of the bladder, and SIMS' catheter inserted to drain off the urine.

The after treatment was the same as is usually adopted after the operation of vesico-vaginal fistula, with the single exception that the bladder was twice injected with warm water through a double-tiered catheter, so as to allow no accumulation of mucus, pus, blood, urinary salts, or the like, which might have become the nucleus of new concretions. That these injections were made gently and without undue force needs no assurance. Besides, they were always instituted in the very same position and place in which the patient had been during the operation.

For several days the patient was doing admirably, the wound healing by first intention. On the fifth day, however, a small leakage was discovered in the center of the wound, which remained whilst the rest firmly united by first intention.

The last time I examined the patient was in April, ult. Her general condition was highly satisfactory. She had gained in flesh and appearance, and expressed herself fully relieved of her local trouble. There was a small fistulous intercommunication between the vagina and bladder, through which an inconsiderable portion of the urine passed, whilst the larger quantity was voided through the urethra.

My removal to this city in the spring of this year prevented me from the attempt at closing the fistulous opening, and I could do no better than to consign the patient to my distinguished friend, Dr. THOMAS ADDIS EMMET, of New York, who, I presume, has by this time performed the task.

REMARKS.—The preceding case is remarkable in more than one point:

1st. In the hour-glass contraction of the bladder.

2d. In the mechanical action of the calculus as a valve separating, as it were, the two compartments of the bladder.

3d. In the peculiar symptoms arising from this cause.

In reference to the hour-glass contraction, I notice in ROKITANSKY'S work on pathological anatomy (Vol. 3, p. 358), that a similar case has been recorded by VOIGTL, but whether or not complicated by calculus does not appear. The contraction is obviously the result of cystitis affecting the mucous and muscular coats of the bladder, and intersecting them with sclerotic tissue.

The formation of calculus under these circumstances, when the urine is mixed with mucine and pus, and rendered susceptible to alkaline fermentation, is readily comprehended, but not so easily can the location of the stone be accounted for. No foreign body had served as a nucleus, the entire calculus being made up of urinary salts.

Now that we understand the exact pathological condition of the bladder, the symptoms offer no difficulty of comprehension; on the contrary they appear as the direct effect of the pre-existing mechanical arrangement.

Fig. 2 of the adjoining illustrations represents the calculus at *b* longitudinally divided. Weight 646 grains, Troy; length 2 inches; width at base 1 3-8 inch in one and 1 1-4 inch in the other direction; circumference when held by the same small forceps employed in the operation, 4 1-2 inches.

III.

Repeated Bilateral Lithotomy in a Child—Removal of small Calculi from the Urethra—Final Solution of Calculi in the Bladder by Dilute Nitric Acid.

In 1866 I took charge of a poor Irish boy suffering severely from urinary calculus. The little fellow was not quite four years of age, of a highly nervous temperament, and therefore very responsive to any kind of pain.

The first bilateral operation eliminated from the bladder a hazel nut sized stone. The wound healed rapidly, and recovery seemed to be unconditional. A fortnight after the closure of the wound, symptoms of

lithiasis returned. Within the ensuing four months the suffering became as intense as before, in addition to which the wound again opened and freely discharged. On examining the bladder new calculi were discovered demanding operation. I should have gladly resorted to lithotrity but for the perineal fistula. Thus no alternative was left but to perform the former operation over again, including the fistulous track by the line of incision. On that occasion several calculi were taken away, of which the largest corresponds in size with the first calculus.

Although I had most carefully cleansed the bladder and urethra after the first operation, and carefully explored either for remnants without finding any, I had nevertheless my misgivings that the speedy reformation of stones was not entirely disconnected from small fragments left. I bestowed, therefore, the most anxious attention upon the absolute removal of any and all detritus, and feel assured that I fully succeeded in my object. The wound closed again kindly, inclusive of the perineal fistula.

About five or six weeks after the second operation there was another relapse of the previous symptoms, and the exploration of the parts involved fully affirmed the apprehension of new stone or stones. A small one I encountered already in the urethra, about an inch from the external orifice, from whence I removed it by DAVIEL'S spoon. A second one was lodged within the membranous portion of the urethra. Failing in my effort to extract it from thence, I pushed it backward into the bladder. Very unwilling to risk a third operation, I at once directed my attention to the chemical solubility of the calculi, and finding that they were made up in the main of triple phosphates, dissolving slowly but surely in a weak hydrate of nitric acid, I determined upon a trial in this direction. Henceforth I made tri-weekly injections of about two ounces of liquid at a time into the emptied bladder, consisting of seven parts distilled water and one part dilute nitric acid. The fluid was kept back for about half an hour by an India rubber ring placed round the penis so as to compress the urethra. After each injection of acid the bladder was thoroughly cleansed with warm water.

In the beginning I most carefully watched the effects of the chemical treatment, being apprehensive of irritation, and cystitis itself. Finding, however, complete tolerance of the bladder, I soon relaxed in my attention, and allowed the liquid to remain as long as the patient could bear it. Pulpy substances made their appearance in the urine, and for a few months continued to be discharged. Meanwhile the internal administration of nitro-muriatic acid was resorted to. At the end of sixteen months' treatment, counted from the first operation, the patient had fully recovered and was dismissed.

CONCLUDING REMARKS.—The preceding case is notable in two particulars: 1st, in the rapid re-formation of the urinary calculi; and, 2d, in the efficacy of chemical agents in dissolving urinary deposits in the bladder.

In reference to the first point, no surprise need be entertained, if the urine be overcharged with saline matter, acting as an irritant upon the

mucous coat of the bladder, becoming contaminated with organic elements thus, and subject to alkaline decomposition, which in turn favors the formation of stone. Nevertheless, the early recurrence of the stone after the first operation had given rise to the apprehension of detritus having been left. All suspicion on this score must however be dismissed, since another relapse ensued after the second operation.

The idea of destroying urinary calculi by chemical action is of course no new one; on the contrary, it is antiquated and almost entirely abandoned; whether justly so I do not pretend to consider on this occasion. At any rate the preceding case furnishes some tangible evidence of its practicability. I do not venture upon the speculation that the chemical treatment of urinary calculi might be usefully extended to the differently composed stones, but it would seem that those made up chiefly of triple phosphate deposits are susceptible to being dissolved in the manner adopted.

The group of calculi represented by Fig. 3 belong to the case just related.

Fig. 3 (a) is the calculus first removed. Its very appearance and weight indicate that it has been in the bladder a longer time than the others; for almost of the same size as Fig. 3 (b), it weighs 108 grs.—that is, 23 grs. more—is evidently of a firmer composition than the latter, and presents a comparatively smooth surface and an oval shape, 1 inch in the long and 3-4 inch in the short diameter.

Fig. 3 (b) is pear-shaped, uneven and rough on the surface, very porous and light, weighing but 85 grs. Troy. 1 1-4 inch in length and 1-2 inch at its widest part. This and Fig. 3 (c) were extracted by the second operation.

Fig. 3 (d) was removed from the urethra. It is cylindrical in shape, only 8 1-2 grains in weight, and just large enough to pass by that channel.

1116 PINE STREET, December, 1869.

*THE SCELOMETER,**

An Instrument for Measuring the Lower Extremities in Fractures and Dislocations.

By H. Z. GILL, M.D., St. Louis.

It frequently becomes a matter of much importance in making the diagnosis of a case as to the existence of fracture or of dislocation, to know the exact amount of shortening or of lengthening. This is a fact not only at the time of the first examination, but also during the treatment, and at or after the dismissal of the case. And in a medico-

* Scelos (σκελος) the leg, and metron (μετρον) a measure.

legal point of view, it may be of great value to know the exact condition of a limb as to length. In judging of the degree of efficiency of a particular apparatus, exact measurements are necessary, such as can be made by any one and relied on by all.

Having observed the discrepancy in the statements of many able men of large experience as to the results after using the same or similar apparatus, and having experienced the difficulties and uncertainty in obtaining exact measurements in fractures of the thigh, especially when observing these accidents and their results in the hospitals of Europe, Paris in particular, I arrived, after considerable thought on the subject, at certain conclusions, which I have more recently put into practice.

The pelvis is taken as the part from which alone all the measurements are to be made. It forms the base of an isosceles triangle, of which the lower extremities, in their normal condition, are the legs. In using the tape-line as a measure (and I have measured a large number), I have found it impossible to agree in results with those who had treated the cases. The difficulty lies, first, in fixing the tape exactly on a given point on the pelvis; secondly, in securing a straight line to another point on the limb; thirdly, and especially, in obviating errors arising from obliquity of the pelvis, and of different degrees of obliquity in measuring the two limbs separately.

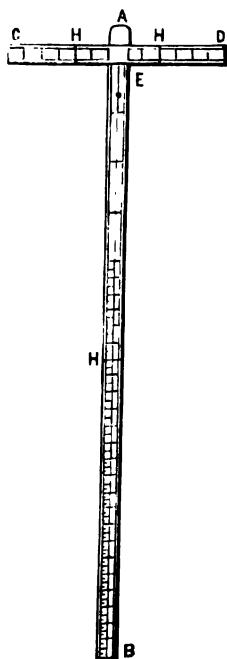
Prof. HAMILTON, in his work on "Fractures and Dislocations," on diagnosis in general, says: "The limb in case of a supposed fracture of a long bone, may now be measured with a tape line, and compared with the opposite limb, having first marked with a soft pencil or with ink the several points from which the measurements are to be made." Again, on symptoms of fracture of the neck of the femur within the capsule, to determine the existence of shortening, if there be any, "it is not sufficient to lay the patient upon his back and place the limbs beside each other. We ought also to measure carefully with a tape line,

from the pelvis to the leg or foot, and from various other points, until we have placed this question beyond doubt."

We may say men of ability, honesty and accuracy are constantly making mistakes in using the tape. We would not be willing to trust ourselves with it in a case requiring exactness. We might quote further from the same able author on the differential diagnosis of fracture of the neck of the femur within and without the capsule, to show that a part of the success rests upon the exactness of measurement.

The line of the trunk, as indicated by the position of the umbilicus, has nothing to do with the case in hand. It is the pelvis alone with which we have to do.

The instrument which I have devised and used is a double square or cross.* The long arm ($a b$) is three to



[Fig. 1.]

At the points $h h$, two inches from the perpendicular, on

three and a half feet long from the lower edge of the short arm ($c d$) to b , the lower end of which, for a foot and a half, is marked off in inches, half and quarter inches. Both pieces are an inch wide and about three-eighths of an inch thick, in order to give sufficient firmness and strength. The perpendicular ($a b$) extends above the horizontal ($c d$) about an inch. At e is a round-headed screw, on which the ring of a measuring tape may be hooked to make measurements to various prominent points, such as the trochanter major. $c d$ is the horizontal piece, thirteen inches long (may be made longer if deemed necessary), six inches from each edge of the perpendicular, also marked off in inches and halves, and is fitted into and glued to the latter at exactly a right angle.

* Referred to in the May No. of this journal, 1869, p. 219.

each side, there is a hinge on the under side to allow the ends (*c d*) to come down to the anterior spinous processes in cases of prominent abdomen; and besides, it allows it to be folded on the flat when not in use. There is one also at the middle of *a b*. They should be firm, and should work accurately.

The instrument is applied by placing the horizontal piece (*c d*) on or up against the anterior superior spinous processes of the ilia (as the patient lies upon his back), so that the perpendicular shall be exactly equally distant from each spinous process, or, in other words, exactly between them. The feet being placed some distance apart, the perpendicular is allowed to fall easily between them, while the horizontal is retained exactly against the processes. The feet are now to be approximated to the perpendicular so that the malleoli may touch one against each side. If a corresponding point of each malleolus touches opposite points on the measure, there is no difference; the limbs are of equal length. If one should touch at a point higher than the other, there must be lengthening or shortening according as the affected limb touches a point lower down or higher up than the other. Care must of course be exercised that the instrument be not displaced in bringing the feet to it, and also that corresponding points on the malleoli be taken in the account. Other points on the limbs may be measured at the same time, to wit, the bottoms of the feet, the patellas, the internal condyles of the femur of each limb; and from the screw as a fixed point measurements may be taken to the trochanters, and to points on the pelvis.

It requires but little reflection to comprehend the principle, as well as the application of the instrument.

In cases which have a very prominent abdomen, a tape or string may be drawn across or around from one process to the other, and then the horizontal piece may be laid on it. Or *c d*, instead of being made of straight pieces, may be curved, a form which I have also used.

In cases of deformed pelvis, there might be some difficulties in obtaining correct results, but only such as would apply to any other method.

CASES.—*Fracture*.—January 12, 1869, Mrs. PRISCILLA RAWLINS, aged 54, fell down stairs, fracturing the left femur in the lower portion of the upper third (so diagnosed). Dr. E. A. CLARK's "Improved Hodgen Splint" was applied and retained eight weeks. It was reported to be full length, as measured with the tape-line. With the scelometer, or double cross, measured by Dr. CLARK, the shortening was shown to be one centimetre—two-fifths of an inch.

Some time after these measurements were made, the patient was attacked with typhoid fever and died. The femur was procured, and it showed a transverse or longitudinal fracture upwards from the junction of the middle and upper thirds, leaving the trochanter major attached to the shaft or main portion of the bone, and the head attached to the inner fragment. The fragments were firmly united by osseous material. The shortening was as near two-fifths of an inch as could well be measured on the bone.

Dislocation.—AUG. JOHNSON, aged 33, admitted to the surgical ward of the St. Louis (Sisters') Hospital, in charge of Dr. GREGORY. The left hip-joint had been injured about four and a half weeks previously by a bank of earth falling on him. The extremity, measured with the scelometer, was found to be nearly an inch and three-quarters longer than the other. It was also difficult to bring the left limb at the foot to the perpendicular. *Diagnosis*.—Dislocation into the thyroid foramen. Gave chloroform; manipulated the limb, and at the same time made traction outwards at the upper third of the thigh; reduced. Present, Drs. GREGORY, HODGEN, YARNALL, myself and others.

Contusion.—One or two cases have been presented in which dislocation and shortening have been supposed to exist, and attempts had been made at reduction by pulleys, but in which, by exact measurements with this instrument,

it was shown that there existed no displacement. All obliquity of the pelvis being removed, the supposed lengthening or shortening was proven not to exist.

Many more cases might be added. These are given as samples to show the applicability, and in some measure the value of the instrument.

1117 PINE STREET.

*ABSENCE OF THE VAGINA—THREE OPERATIONS—
ESTABLISHMENT OF THE MENSTRUAL FLOW.*

By MONTROSE A. PALLEY, M.D., Professor of Gynæcology, St. Louis
College of Physicians and Surgeons.

Miss ———, from one of the Gulf States, was placed under my care for treatment on the 30th of August, 1869. She was within a few days of twenty years of age, and had, since the age of fourteen, experienced the menstrual molimina without any show of menses; and at the age of seventeen her health was of such a precarious character that she was sent North, hoping that a change of climate might effect something towards its amelioration. This was of no avail, and the constantly recurring molimina, with all of their usual bad symptoms, alarmed her parents so much that medical advice was sought upon her return home. For more than a year the medical gentleman in charge prescribed such remedies as chalybeates, sea bathing, horseback exercise, alteratives, etc., but to no purpose. A local examination was then insisted upon, when a supposed imperforate hymen was discovered, and its puncture was advised, because her medical attendant, who is among the most prominent physicians of the South, thought he could detect some fluid, when a rectal-digital examination was made at the time of the menstrual molimen. This supposed retention of menses was not found upon any subsequent examination made in St. Louis, either by Drs. PAPIN, BAUER or myself, although we examined her some

two weeks subsequent to the "period." If such took place it must have been produced by a hæmorrhage from the ovaries at the time when the Graafian vesicle was ruptured, and the blood must have been absorbed almost as rapidly as it was poured out. Fortunately, the proposed puncture of the *imperforate hymen* was delayed several months, otherwise its performance would, in all probability, have been followed by unexpected results, as either the bladder or rectum would have been penetrated. In the meantime, so alarming were her symptoms that her parents sent her to St. Louis to a medical gentleman, an intimate friend of the family, with a request that she be treated as he deemed most advisable. Upon her arrival here she was placed under my care, and then I obtained the above history, as well as the following facts :

During six years past she had had frequent attacks of epistaxis (vicarious menstruation?) and vertigo, more particularly at each menstrual molimen, with great lumbar and sacral distress, and at that period during the last two years she also had fainting spells, with heart palpitations, co-added to the other symptoms. Auscultation revealed no organic heart trouble, but the chloro-anæmic *souffle* was marked, and also heard in the large veins about the base of the neck. The urine was about normal. The mammæ were well developed.

A physical examination discovered nothing externally which would lead one to suspect anything beyond a mere imperforate hymen. The external genitalia were well developed, the capillary growth abundant, the labiæ (majora and minora), as well as the glans of the clitoris, perfect, and the meatus urinarius and urethra were normal in position. Hypogastric palpation, conjoined with the recto-digital examination, permitted the finger to make out, on either side of the median line, high up in the pelvis, two small, round, hard bodies, which, when firmly pressed upon from below, whilst the other hand pushed strongly down from above, produced a slight sickening pain. These

bodies were presumed to be the ovaries, as in the median line, and a little in front, a third one was felt, apparently of denser or firmer structure, lying *across* the pelvis (of the approximate size of a hickory nut), and which was the undeveloped uterus. Below this body, between the rectum and the bladder (determined by a catheter being introduced and pressed somewhat firmly against the *bas fond* and above the base of the *trigonum vesicæ*), the space was comparatively nothing, so thin that the catheter could move the finger backward in the rectum, or the finger could push the instrument forward in the bladder. Absence or atresia of the undeveloped vagina, with undeveloped uterus, was pronounced to be the condition, and an operation for its relief was proposed and accepted. Such a grave condition as this demanded other counsel, and I asked for the opinion of several of my medical brethren before I assumed the responsibility of such an intricate undertaking. Drs. BAUER and PAPIN were therefore called in, and after a thorough examination, accorded with the views before expressed. Therefore, on the first day of September, 1869, (the patient having been duly forewarned of the possible dangers, both immediate and prospective), chloroform was administered, and another most careful examination made as before, and no contra-indications being presented, the operation was proceeded with, as follows :

The patient's bowels having been well cleared out, and the bladder emptied, she was chloroformed and placed upon her back, with the legs flexed on the abdomen, and the buttocks brought well over the edge of the table. The external genital fissure was carefully divided with the scissors, when a male catheter (silver) was introduced into the bladder to serve as a guide, and the left forefinger passed into the rectum. The connective tissue between was lacerated by means of lateral sweeps of the right forefinger, to the depth of about three and a half inches anteriorly and four inches posteriorly, when the uterus was felt above a tense membrane, which I supposed to be the

peritoneum. The hæmorrhage for the moment was profuse, but was readily checked by firm pressure of iced water sponges. After the parts were well cleansed, and all bleeding had ceased, *the bladder and rectum were easily pushed into the space which should have been occupied by the vagina, of which not the slightest trace could be seen.* I then remarked to Drs. PAPIN and BAUER that I would not attempt to penetrate the peritoneum, but would plug the canal, hoping that pressure would produce its absorption. I felt that if it were the peritoneum the success of the operation would be endangered by a traumatic peritonitis. I deemed it advisable to await further developments. This opinion being concurred in, a glass tube three inches in length and seven-eighths of an inch in diameter was inserted, and retained in place by means of a compress and a T bandage. The patient, when the anæsthesia had passed off, complained very much of rectal and vesical trouble resulting from pressure of the tube, but otherwise was quite comfortable until about five o'clock in the evening, some six hours after the operation. I then found that the bladder was filled, and required evacuation, which somewhat relieved her. At seven o'clock a fever had set in, which increased until nine o'clock (the pulse being 128 per minute), when Dr. WASHINGTON saw her with me, and we concluded to give her opium, camphor and belladonna every two hours (one grain each of the opium and camphor, and one-fourth of a grain of belladonna), which quieted her pain in a few hours, and by nine o'clock the next morning the pulse came down to ninety. She never had any fever after the second day. The urine was regularly drawn off, the parts syringed with warm water, and the plug removed twice daily for about eight days, during the whole of which time the patient's condition was improving, notwithstanding the drainage was very profuse, and the odor of which was most offensive unless the syringed water was thoroughly saturated with the bisulphite of soda, or slightly impregnated with the perman-

ganate of potassa. The stream—injected by means of the Davidson syringe—at first gave rise to intense lumbar pain, but this gradually diminished, until on the tenth day it could be thrown in with considerable force without producing much uneasiness. On the twelfth day after the operation she went down stairs to dinner, and from the eighth day she had been enabled to remove the plug, evacuate her bladder and bowels, and readjust it without any difficulty. On the morning of the thirteenth day after the operation, which was about the period of the menstrual molimen, the removal of the glass plug was followed by blood, which was dark and thick. It was slightly perceptible during that day, also on the next, and had been noticed the day before. This bloody discharge, however, was attributed to a supposed rupture of some adhesions at the upper end of the canal, and no further attention was paid to it at the time. A digital examination on the morning of the fourteenth day revealed considerable contractility of the cicatricial tissue in the upper third of the canal, but as the plug still penetrated easily, nothing was done for the moment. On the evening of the 16th or 17th of September, the patient, contrary to my orders, removed the plug, *and danced nearly the whole night*, and when she retired early next morning—between four and five o'clock—was so fatigued that she forgot to reintroduce it, and when she awakened about 2 P. M., endeavored to do so, but failed, and did not again succeed, notwithstanding she made repeated efforts towards its accomplishment. Not being informed of this condition of affairs, and presuming that the plug was *in situ*, I did not visit her again until the evening of the 19th of September, when, to my great chagrin, I discovered the entire upper half of the canal completely obliterated by firm contractions of a most unyielding nature. There was nothing to be done save another operation, to which she courageously submitted on the second day after (Sept. 21st), and which was but a repetition of the former operation, only it was confined to

the upper half of the tract, the same gentlemen (Drs. PAPIN and BAUER) being present and assisting. On the second day after the operation I found the glass plug to be too small, and it was changed for a No. 2 Barnes' dilator (water bag), which answered most admirably, whilst some other glass tubes could be manufactured of a more suitable size, which, however, could not be done, so one of silver was made by Mr. F. A. DURGIN, silversmith, of most beautiful workmanship and finish, 3 3-8 inches long and 1 3-16 inch in diameter.

Oct. 9th.—The cavity is completely covered by a tissue resembling the vaginal, and in the cul-de-sac superiorly a puckered fold, looking like a fistulous opening, is observed. No probe, however, can be passed into it.

Oct. 10th.—Upon withdrawing the tube this morning, it was covered with blood; and this is the date of the return of the menstrual molimen.

Oct. 11th and 12th.—Bloody discharge still continues.

Oct. 13th.—Cessation of bloody discharge.

During all these days the lumbar and sacral pains so very distressing prior to the operation, occurring at the menstrual molimen, were scarcely appreciated. From this date nothing particular was noticed until the 27th of the month, *when the patient again removed the plug to go to another ball, where she danced all night, and it could not be introduced as before, after a similar imprudence.*

Oct. 28th.—The canal was so much contracted that the finger could be passed with great difficulty through the lower third, above which no contractions existed. The introduction of the finger gave rise to extreme pain, and it was grasped as if by a sphincter muscle. After some twenty minutes of steady pushing, the parts were found to yield, when I introduced the middle finger, after an effort of half an hour more, when the thumb of the left hand was forcibly and suddenly pushed in, and the parts again lacerated as in the preceding operations. No chloroform was administered, as the patient dreaded the nausea which fol-

lowed the second operation. There was but slight hæmorrhage; and a No. 3 Barnes' dilator was introduced and kept *in situ* for forty-eight hours, without being removed, when it was found that the original opening was intact. The parts were well syringed with tepid bisulphite of soda water, and the silver plug introduced. She arose from her bed in three days afterwards, and within a week was walking about the house.

Nov. 7th.—The menstrual molimen again at hand, and a free bloody discharge, with none of the old pains.

Nov. 8th and 9th.—Bloody discharge still going on; no pains.

Nov. 10th.—Bloody discharge ceased; and from this date no further contractions have taken place, the canal remaining well opened and covered with a tissue very like the vaginal.

Dec. 4th, 5th, and 6th.—Bloody discharge as before. The uterus has not increased in size, but remains very much as when first examined; but the general health of the patient has most materially changed for the better. Her appetite is excellent, and she has increased more than twenty-five pounds in weight. There have been no fainting spells, vertigo, or epistaxis, since the first operation; and the immunity from pain in the loins and about the sacral region, which she now enjoys, is most satisfactory to herself and very gratifying to her friends.

The question may naturally be asked, whence comes the periodical flow of blood per vaginam? I can scarcely believe it to be otherwise than a transudation of blood, resulting from engorgement of the generative circle of blood vessels so intimately connected from the bulb of the vestibule to the bulb of the ovary, and the pampiniform plexus, always incidental to the maturation of the ovum and the rupture of a Graafian vesicle.

Four periods of menstrual molimina have passed since the operation, and at each time none of the old troubles have appeared, but instead the artificial passage has given

exit to blood, and the health is better than ever since before the age of fourteen. From a condition of misery, she has passed into one of happiness—of almost complete womanhood; and however much doubt clouded the prognosis, the excellent result obtained fully justifies the hazard and repays the intense anxieties of the operation. The case is a unique one, none of those reported being exactly similar. The operation of AMUSSAT,* performed February 29th, 1832, was for menstrual retention; and, although successful for the relief of the trouble, the canal became almost obliterated. Prof. T. GAILLARD THOMAS seems to regard this as an operation for atresia vagina rather than for its absence. *Vide* THOMAS on Diseases of Women, p. 138. In a case operated on by DE HAER,† January 25th, 1761, where there was absence of the vagina, with symptoms of menstrual retention commencing at the age of sixteen and continuing eight years, the tract was opened by a knife and the bladder laid open, resulting in death on the third day. BERNUTZ † states, in reference to this case, "by way of warning against the employment of the knife in these cases, instead of using the finger, as in the case recorded by AMUSSAT," that "the difference in the relative mortality of these proceedings has induced me to separate cases of congenital absence of the vagina requiring the process of separating the parts by means of the finger, from other cases of fibrous obliteration, congenital, or acquired in early life, for which alone the knife must be resorted to, although it is always under circumstances of extreme danger."

This statement, however, is not in accordance with the experience of American gynæcologists; for SIMS and EMMET never use the knife, but the *scissors*, finding that less hæmorrhage, inflammation, and contraction take place

* Obs. d'AMUSSAT, Séance de l'Institut. 2 Dec., 1835. *Gazette Medicale*, 1835, pp. 785 and 817.

† BERNUTZ & GOUPIL (p. 17, Vol. I.), *Clinical Memoirs of the Diseases of Women*. Sydenham Soc. Transl.

when they are used. In a case of acquired atresia upon which I operated more than a year ago, where the scissors were used in conjunction with laceration, and retained menses were evacuated, the patient recovered and has since become pregnant. In a case reported by STOLZ,* the genital fissure was divided externally by the scissors, and the recto-vesical space lacerated by the fingers. This operation was performed only when he discovered the condition after dividing a supposed imperforate hymen. There was no menstrual retention, and no discharge ever took place afterwards. The object was to permit cohabitation after marriage; but the report states that the vagina was completely obstructed and filled with a cellulo-fibrous material. For the purpose of marriage was a similar operation performed by Dr. EMMET,† and the operation was not only successful, but the patient married after seven months. This is the only case reported where there can be no doubt about confounding *atresia* with absence of the vagina. All others seem somewhat vague and uncertain. A. BÉRARD, in 1840, reports a case by laceration of the recto-vaginal septum, for retained menses, which was also successful. VELPEAU‡ reports successful cases by CABARET, VENTURA, DESGRANGES, DELPECH, JEFFERSON, COSTE, and WILLAUME; but it is probable that all of them were atresia of the vagina, and not absences, as the operations were for retained menses. LANGENBECK and McFARLAN lost their cases. FRÉTEAU§ reports a remarkable case, where he made a puncture about three-fourths of the depth of the tract to the menstrual collection, and drained it off by means of a canula; but at the end of a few days this cicatrized, and the menses passed by the bladder ever afterwards—in all probability the result of a wound of that organ.

These are about all of the cases of absence of the vagina

* COLOMBAT (MEIGS' translation). Philadelphia. 1850. p. 111, *et seq.*

† *Vesico-vaginal Fistula*, etc., etc., p. 230.

‡ VELPEAU—*Médecine Opératoire*. Vol. IV., p. 356.

§ *Journal général de Médecine* (XLIII., p. 54), quoted by BÉRARD.

that I can collect, and no one of them is similar to that one at present reported. I will state why the operation was performed :

1st. It was distinctly stated by her medical attendant, a gentleman whose opinion was weighty, that an accumulation of blood took place every month, within the pelvis.

2d. The patient was failing under the irritation of repeated menstrual molimina, and every reasonable effort had to be made to overcome the amenorrhœa.

3d. If any blood were effused at the period, it was thought it could be evacuated and its flow established by the natural outlet.

4th. Marriage was contemplated.

In conclusion, I think the physiologico-pathological reasons were well grounded, leaving the proposed marriage entirely out of the question ; and the success obtained bears out my opinions, as well as those of Drs. PAPIN, BAUER, and WASHINGTON, for whose friendly cö-operation in this case I must again express my thanks.

1525 OLIVE STREET, Dec. 15th, 1869.

POSTSCRIPT.—*January 7th*, 1870.—The patient is now undergoing the bloody efflux per vaginam, with none of the difficulties she experienced before the operation. No change in the tract of the vagina since the last examination, and no increase in size of the uterus.

*ON THE RELATIONSHIP EXISTING BETWEEN SOME
FORMS OF HEREDITARY DISEASES.*

By W. B. OUTTEN, M.D., Professor of Descriptive Anatomy, St. Louis
College of Physicians and Surgeons.

Of the vast number of diseases predominant in this world of ours, many of them can, in the present state of our knowledge, be guarded against ; but in the whole nosology there is no class of diseases so widely extended and insidiously increasing, and so often intractable, as those

hereditarily transmitted; and yet there is no class which, by control of will, judicious thought, and strict observance of natural law, can be lessened and ultimately made infrequent, as those of the character before mentioned. When we think of their wide extension, their continued propagation, and their continued modification of other diseases—in many of them their almost constant fatality and permanent impress—it surely appears as though it were a subject not only worthy of the most earnest and serious thought of our medical philosophers and philanthropic savans, but of every dweller in the land. Yet few are the minds which have been employed to relieve man (*en masse*) of so constant and fatal a scourge. Century after century has rolled by, and the actual advance in the cure and prevention of them is so slight as scarce to deserve the appellation of advancement; and so long as man continues, through ignorance, indifference, or defiance, to violate the laws which govern the procreation of his species, so long will they exist and be mournfully rife.

The most frequent causes producing them are marriages of consanguinity, improper selection, and any causes whereby the normal standard of the parents is lowered either physically or mentally, the parents continuing at the same time a propagation of their species. Starting out with the belief that the offspring receives from its parents a perfect impress (whether diseased or not) of psychical and physical qualities, we will consider marriages of consanguinity as a source producing hereditary disease. From observation it would at first appear that there arises, in consequence of a continued intermixture in marriages of consanguinity, a deterioration of the offspring proceeding from such unions, a condition or state of imperfect, degraded mental and physical development produced. From careful and vigorous scrutiny it appears that nature does not permit the same family of a genus to propagate for perpetuity; there seems to be a law, which extends through both the animal and vegetable kingdoms, "that an occasional inter-

cross is necessary for the continuance of a species.” (Darwin.) In asserting the necessity of an intercross, we do not wish to be understood as asserting that there is an innate or natural peculiarity or principle which, by a continued intermixture, causes a deterioration of the individuals coming from such unions; for it is well known and easy of demonstration in equally numerous cases as *per contra*, where those closely connected by relationship have united and no deterioration of offspring followed: indeed, so often is this the case that it completely refutes the idea that simply on account of consanguinity in marriages deterioration arises. The cause of any deterioration of offspring in marriages of consanguinity, we apprehend, is this, and is equally applicable to cases outside of such marriages: As was before stated, the conditions which engender diseases are so varied and numerous that it seems to be an exception in man to be free from some slight inherited or acquired predisposition to disease, rather than the rule. Should there exist in one branch of a family a predisposition to a certain disease, a continued intermixture in the same family adds to and exaggerates the predisposition in the progeny, a deterioration springing from the violation of an existing law. No matter how closely related, if the offspring proceeds from a perfectly healthy male and female, no matter what degree of consanguinity exists, it is rational and natural to infer, and even demonstrable, that it will not be deteriorated, but as perfect as those (*cæteris paribus*) of which it came. So, virtually, we believe that the predisposition to disease produced by marriages of consanguinity is nothing more than previous hereditary predisposition exaggerated. The aberrations producing and continuing these diseases proceed from the violation of minor laws. If there were no counteracting laws, the full, unhindered working of this one law (the law of deterioration) possesses power enough to deplete the earth of life and moving things. But there will be found, on investigation, that there evidently exists in the animate world a law compelling and assisting existing life to mix

widely rather than to mix intimately. In ages far gone, when man first grew to nations, then most powerfully worked this great law of intercross. Nations impelled, or rather incited, by other laws, fulfilled the design. Wars were waged; nation after nation invaded nation, and left an almost imperishable impress. But now, in modern days, wars can be done away with; for steam, the mighty bee of civilized and uncivilized earth, conveys the pollen to intercross the world, with lavish hands. This law exists also in the vegetable kingdom. It is known and actually demonstrated that in some hermaphrodite plants there are special contrivances adapted to prevent self-fertilization, seeming to be designed by nature as a safeguard against deterioration. (Darwin's *Origin of Species*; Amer. ed., page 90.)

After reading such evidence as this, and the long tables and lists given by various authors proving the many deteriorations arising in consequence of unions in consanguinity, it appears to us as though it were proper and plausible to assign as the main cause and consequent necessity of a cross, the liability of life and living things to accident and the consequent ultimate imparting of the defection to the progeny.

Another distressing and most fertile source of hereditary disease is improper selection. By this we mean, that in marriage the male or female being defective takes unto him or her, as the case may be, one who is alike defective; and in consequence, if there be offspring, it will be a type of those from whence it came. We do not assume that, in every instance, the offspring will be defective; for there may arise conditions, or rather laws, which may so modify the existing taint as to prevent its full development; but this is so seldom the case as to make it only an exception to an almost continuous rule. We can well appreciate, by a moment's thought, how potent an ultimate cause of hereditary disease this is. Knowing how very powerful, in the present time, is the sway by which passion, sympathy,

desire of wealth, and numerous other influences govern man in the selection of his mate, and his ignorance, defiance, indifference, or callousness to the unfolding of the future, will enable us to see the difficulties to be incurred in the prevention of diseases arising from this cause, and its fruitfulness as a source of disease. Still we know that by control of will and judicious thought and strict observance of natural laws, this (improper selection) may be made utterly futile as a source of disease. When man can be brought to think, as is his duty, upon the necessity of selecting a mate healthy, we are unable to say—possibly when education assumes a greater range than now. It is pitiful to see man, by faulty marriage, dealing out to himself misery and to the world disease by his progeny, whether it arises from ignorance, defiance, or indifference. Still it is inexorable: he who transgresses law reaps the punishment. If this one cause would cease to be operative, myriads would be the lives spared to adorn, elevate, and benefit a world.

Another most potent cause of hereditary disease, one which is extensive and widely prevailing, is any cause or causes whereby the normal standard of the parents' health is lowered, *mente vel corpore*, and the parent or parents continuing, at the same time, a propagation of their species. This we deem the most potent of causes. Think of the numberless women throughout the world having children, when disease has pervaded their entire system; breeding for the world's care and sorrow; breeding germs which develop into diseases of the most hideous kind. Thousands of diseased beings brought daily into the world on account of the lack of education and control of will! Scrofula in its many forms, mania in its sorrowful shapes, cultured as carefully as the goods of earth! Almost innumerable modifications of disease spring from this source.

Concerning the hereditary diseases themselves, it is our intention to speak principally of those affecting the great nervous centers. ESQUIROL observed that, of all diseases,

insanity was the most hereditary. LUYOL, SCHRÆDER VAN DER KOLK, QUISLAIN, MICHEA, MOREAU, and others, note the frequency of the transmission, QUISLAIN estimating that hereditary transmission occurs in one-fourth of the cases. REMEN makes it one-third; MICHEA says "one-half, if not three-fourths, have had or still have some members of their family insane." MOREAU extends the average still further, asserting that nine-tenths of the cases occurring are hereditary. The most careful and reliable writers on the subject make it not lower than one-fourth, and possibly as high as one-half; but all authors agree that hereditary transmission is one of the most potent causes of insanity. Here an acquired or transmitted ill becomes an inborn infirmity of the child. An interesting point to observe in hereditary insanity is the seemingly almost constant accompaniment of scrofulosis. Dr. T. S. CLOUSTON found that there is an hereditary predisposition in seven per cent. more of the cases of insanity with tubercle than of the insane generally. To appreciate this fully, it must be known that, as an average, more of the insane die of scrofulosis than from any other cause. VAN DER KOLK, speaking of this, says: "It is a striking fact that, in the same family, some members suffer under mania or melancholy, and yet those who escape these diseases—brothers and sisters—die of phthisis. I have so often noted this fact that I cannot regard it as mere accident." Dr. MAUDSLEY says concerning this point that, watching the decay of a family, it is often seen that phthisis and insanity are of frequent occurrence amongst its members, and when extinction occurs, the last of the family dies, he not seldom dies insane and phthisical both. In the tables given by Dr. BEMISS concerning marriages of consanguinity, we find that in thirty-eight cases of insanity of offspring resulting from said marriages, fifty per cent. were affected with scrofulosis, and no doubt that if the examination had been made with a view to establish the accompaniment, the per cent. would have been fully ninety (90) per cent., it being

only the strongly apparent cases which were reported. Now there exists alike in idiocy the same accompaniment with scrofulosis. Idiocy is a defective development—a condition in which the intellectual faculties are never manifest—a congenital condition. The idiot is for the most part a being in whom nutrition is most imperfect; in terse, it is but mental derangement—an insanity, if you will,—occurring in a non-developed brain. Now, the sort of insanity most common amongst savages is imbecility or idiocy, for the reason “where mind is not developed, varied degeneration of it cannot take place, though it may obviously remain morbidly arrested.”—(Maudsley.)

Now, we have existing among the progenitors of idiots, for the most part, a tubercular taint. It was found by Dr. L. H. DOWNS, of London, that scrofulosis is in 31 per cent. of the progenitors, and that 62 per cent. of the idiots are tubercular. When we compare the statistics of a country concerning the average number of deaths occurring, and the number of deaths from scrofulosis, we can appreciate how close an accompaniment exists. The statistics of London show that the number of deaths from phthisis is about 115 per thousand of the general mortality, while the mortality from scrofulosis in idiots is five times, if not more, than the deaths occurring in general mortality, 408 per thousand—nearly half of the idiots—dying from this cause. Now, what are the causes of scrofulosis? They are varied and hidden, often arising from deficient ventilation, the consequent abeyance of the normal exercise of the pulmonary functions. Thus, it is known that in the mining districts of England—Cornwall and Devonshire—one-half of the whole number of miners deprived of fresh air and light die of scrofulosis in some form, and yet this is considered to be one of the most healthy regions of Great Britain. Imperfect nutrition, occupation, race, and depressing passions, all are exciting causes. The most fruitful cause is the hereditary transmission of the disease. What is the chief characteristic of scrofulosis? It is an

impaired energy in the nutritive processes. If a part is badly nourished, it becomes deranged or diseased; it loses that equilibrium from which springs health. Knowing that the disease is not a specific morbid entity, that takes possession of the body or of a part, but a condition of more or less deviation from healthy life, in an organism whose different parts constitute one harmonious whole, it will be sufficiently evident that a disease of part of the organism will not only affect the whole sympathetically at the time, but may lead to a more general infirmity in the next generation, to an organic infirmity, which will be determined in its special morbid manifestations according to the external conditions of life. If such be the case, may we not often have the relation of cause and effect between hereditary mental disorders and scrofulosis? Why should not scrofulosis in the infant, in an early stage of development of the brain, sympathetically engender disordered action, prevent further development, and produce idiocy. If imperfect nutrition maintains idiocy, why could it not produce it? It is not the impaired nutrition directly, so much as it is the perverted action to which the enfeebled nutrition predisposes, that causes insanity and idiocy. That scrofulosis has an exceedingly definite and close relation to hereditary mental disorders there can be no doubt, for we are told that frequently mental disorders alternate with scrofulosis—that so long as one is arrested the other continues, and that often after its subsidence the former breaks out with increased force. Both diseases sometimes proceed in company, but when they do there is always excess of action in one, and a corresponding lessening in the other. We are told by VAN DER KOLK that the cough of phthisis in the insane is by far less urgent than in the sane patients, and the expectoration more moderate or entirely absent; so that it might be alleged that the patients swallow it. With the exception of the emaciation, the physical symptoms are, beyond doubt, less manifest than in the sane; and the hectic fever usually attains no great height. Speaking

of the alternation of phthisis and insanity, he cites the following case: A woman, in consequence of a severe fright, fell into silent melancholy, which continued for four years. Then a severe cough, which much distressed her, set in, and the melancholy passed off. After half a year the mental powers were quite normal. In the course of two years she was again excited, and fell anew into melancholy, when the cough immediately ceased. In the next year the cough returned, and the melancholy again disappeared, and staid away until, by the entrance of mania, it was again driven out of the field. He says: "I have more than once made the observation that a far advanced phthisis, which threatened rapidly to tend to death, unexpectedly came to a stand-still, so that all of the phthisical symptoms—the cough, hectic, etc.—in a short time ceased, and in its stead mania or melancholia entered in. The patients who, just before, on account of the cough and copious spitting, could hardly speak, now breathed freely and fully, and could speak persistently, nay even shout, without coughing; but as soon as the mania vanished, then phthisis immediately returned and led to death."

We do not assert that insanity or other mental disorder is but a local manifestation of scrofulosis, but are inclined to the belief that a majority of hereditary mental disorders hold a relation with scrofulosis—that of cause and effect. Not that there is an actual tubercular deposit in brain substance, but that if there exists the slightest tendency to mental disorders, scrofulosis will sympathetically and by an impoverishment of blood develop it.

*REMOVAL OF THE ENTIRE CLAVICLE FOR OSTEO
SARCOMA—RECOVERY.*

By F. COOLEY, M.D., Kansas City, Mo.

John Scott, aged thirty years, of Kansas City, Mo., came into my office, accompanied by his medical attendant, Dr. CADWELL, on Sept. 28, 1869, to consult me in refer-

ence to an enlargement of the left clavicle, which was causing him much pain, increased by rough handling given it a few days previously by a physician of the town. Upon examination I found the center of the bone considerably enlarged, hard, and quite sensitive. The day following another examination was had, and the conclusion arrived at that the bone must be removed.

On the 30th of September I proceeded to operate, assisted by Drs. CADWELL, TAYLOR and TODD. The patient was laid upon a table, and being put under the influence of chloroform, an incision was made directly over the center of the tumor down to the bone. This procedure was had hoping we might be able to save a portion of the bone, yet, at the same time, prepared to prosecute the operation to its complete removal, should the disease demand it. In extending the incision towards the sterno-clavicular attachment I felt satisfied I would have to disarticulate the bone. At this stage of the operation a small muscular artery spirted out for a moment only, when it ceased to bleed. I now extended my incisions towards the acromion attachment, and then disarticulated the bone at the sternal attachment, and requested Dr. TAYLOR to raise the bone just a little by means of a vulsellum, to enable me to proceed more surely with the operation, when it gave way about its center, showing complete disorganization of the bone structure. I next proceeded to dissect the bone from the surrounding structures, and finally to disarticulate it at its acromion attachment.

The operation being completed, the large wound was brought together by means of the interrupted suture and adhesive strips, and over these a compress and bandage.

The operation occupied twenty-five minutes. Not a single artery had to be ligated, which was a most remarkable circumstance. The loss of blood was trifling.

On the 9th of October the patient walked about his room, on the 20th was out on the streets, and on the 25th he was in my office, completely recovered. At this writing—Nov. 6th—he is attending to business.

Reviews and Bibliographical Notices.

A HANDY-BOOK OF OPHTHALMIC SURGERY FOR THE USE OF PRACTITIONERS. By JOHN Z. LAURENCE, F.R.C.S., assisted by ROBERT C. MOON. Second Edition, revised and enlarged by J. Z. Laurence. Philadelphia: Henry C. Lea, 1869. 8vo., pp. 219.

Mr. LAURENCE'S "Handy-Book" has not very much to commend it, either in plan or execution. It betrays throughout a petty mind, anxious for notoriety, and not always faithful to the interests of truth. Although made up very largely from the writings of others, it is filled, *ad nauseam*, with allusions to Mr. LAURENCE and his various inventions, which are put forward far more prominently than can be justified either by good taste or a just appreciation of their actual importance. The book is, therefore, rather a disagreeable reflection of its not very distinguished author than an adequate digest of ophthalmology.

This second edition differs in no important respect from the first.

The text contains frequent allusions to the standard test-types of JAEGER & SNELLEN, the latter of which have been appended by the publisher.

J. G.

DISEASES AND INJURIES OF THE EYE: Their Medical and Surgical Treatment. By GEORGE LAWSON, F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital, Moorfields. Philadelphia: Lindsay & Blakiston, 1869. 12mo., pp. 436.

This elegant little volume is almost a fac simile of the well known manuals of Mr. JAMES DIXON and Dr. H.W. WILLIAMS, and covers about the same ground. Following closely upon the admirable treatise by the same author, on the "Injuries of the Eye," it gives evidence throughout of the same good judgment

in the selection and arrangement of materials, and familiarity with the best methods of diagnosis and treatment. It is a simple, methodical and comprehensive hand-book, admirably suited to the daily needs of the physician, and well up to the present state of knowledge. The print, paper and binding are most satisfactory, and reflect great credit upon the American publishers.

J. G.

HAND-BOOK OF THE DISEASES OF THE EYE—THEIR PATHOLOGY AND TREATMENT. By A. SALOMONS, M.D.
Boston: James Campbell, 1870. 12mo., pp. viii, 123.

The attempt to condense ophthalmology within the narrow compass of a vest-pocket manual, and to treat it, withal, in a popular style, suited to the needs of "those entering this interesting department of medicine," must of necessity result in failure. In the present instance brevity has been attained through such meagreness of treatment as renders many sections quite unintelligible, and the whole book altogether inadequate as a guide to the class of readers for whom it is intended, and who alone can possibly want it.

The author of this little book has evidently been a faithful student in an excellent school of ophthalmology, but he lacks, as yet, that familiar acquaintance with the actual wants of students and practitioners which is an essential condition of success in a teacher.

The mechanical execution of the book is most excellent, but the author's proof-reading has been somewhat careless. The only illustration is an elegantly printed frontispiece in colors, comprising an inaccurate section of the eye-ball, and a representation of the fundus of the eye incorrectly copied from LIEBREICH'S *Atlas d'Ophthalmoscopie*.

J. G.

REPORT ON EXCISIONS OF THE HEAD OF THE FEMUR FOR GUNSHOT INJURY. (Circular No. 2. War Department, Surgeon General's Office, 1869). By GEORGE A. OTIS, Assistant Surgeon and Brevet Lieut.-Colonel U. S. Army. Washington, 1869. 4to., pp. 143. Illustrated.

The official publications of the Medical Department of the U. S. Army relative to the surgical experience derived from the

late war, have been subject to favorable comments in this Journal on more than one occasion. The so-called "Circulars" are certainly the most remarkable contributions to military surgery. They are not alone prolific of information, accurate in details, thorough in literary research, but they are likewise distinguished by a criticism so conscientious and fearless and withal so objective, that they well deserve to be classed among the choicest literary productions of the present.

The latest publication contains the report of Dr. OTIS on excision of the head of the femur in gunshot wounds, and we take more than ordinary pleasure in referring to this work. Heretofore, it has been considered an open question, even by the most experienced military surgeons, whether the excision of the head of the femur, in gunshot wounds, be preferable to amputation at the hip, or the temporizing treatment. The want of sufficient statistical material for comparison has probably been the cause why that question has so long remained unsettled.

The sanguinary wars during the last fifteen years, and more especially the late American war, have furnished what seems to be a competent surgical experience to approach its solution. No one is better qualified to deal with this intricate subject, and none could have made better use of the official facilities of his position than the author. The work encompasses the entire question, from the history of the operation to its execution in private and military practice. It traces the details of every recorded case in the latter, and concludes with comparative statistics between the three modes of treating gunshot injuries of the hip.

We fully agree with the author that the results of the operation derived from private practice are as invalid from the difference of extraneous circumstances, as the character of the objects differ for which the excision of the head of the femur is resorted to.

The statistical material collected *exclusively* from military sources comprises not less than eighty-five cases of excision. They are conveniently considered, in three divisions:

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| 1st. Primary | } Operations. |
| 2d. Intermediate | |
| 3d. Secondary | |

As primary excisions, the author defines "those performed in the interval between the reception of the injury and the commencement of the inflammatory symptoms, a period rarely ex-

ceeding twenty hours in duration, although, in a few exceptional instances, it is prolonged to thirty-six or forty-eight hours." As intermediate excisions, "those performed in the inflammatory stage," which may extend "over one, two or three months, according to the extent of the injury;" and as secondary excisions, those performed "after inflammation has subsided, the traumatic phenomena have abated, and the local lesions have become analogous to those resulting from chronic diseases."

Under the first head, thirty-nine cases are grouped, of which thirty-two have been derived from the American armies. Of this number but three recoveries are recorded, a result appalling in the abstract, but in reality not out of proportion with the aggravated character of the injuries for which the operation is performed. Moreover, the mortuary rate of 92.3 per cent. is likely to be reduced by future experience, by more accurate diagnosis of the extent and nature of the accident, by greater care and improved means of transportation, and by an after treatment more perfectly securing rest and position to the affected extremity. This expectation is founded on the very facts adduced by the distinguished author, who himself demurs against some of the operations undertaken, when the injuries extended beyond the parts that alone could be benefitted by the procedure, and against transporting patients in unsuitable vehicles shortly after the operation. It is likewise based on the improving mortuary rate pertaining to the intermediate and secondary excisions, which of course took place under more favorable external circumstances, in well appointed hospitals, distant from the excitement of the battle-field, etc.

Among the recoveries of the primary operation, the case of Lieutenant Dwight Beebe, exhibited in a very handsome illustration, must be looked upon as a triumph of conservative surgery. The limb is but three inches and an eighth shorter than its fellow, which, to all appearance, could be rendered useful by a proportionately high boot.

The intermediate excision comprises thirty-three cases, of which twenty-two have been performed by American surgeons. In all there are three recoveries, a mortality of 90.9 per cent.

We are happy to say that these recoveries are attributable to the skill of American surgery. Of these the case of Private Hugh Wright (XLIV, p. 41,) is most satisfactory, judging

from the adjoining photo-lithograph. According to the statement of Dr. MURSICK, the operator in the case, the femur is firmly attached to the pelvis by a ligamentous tissue an inch and a half long. The limb is quite under control. The man can flex and extend it slightly, and adduct it to a limited extent. The patient states that the improvement of his limb is still going on. At the last examination, he could stand very firmly on his extremity, and move it in any direction with an easy, swinging motion. His general health and physical condition were good.

There are twelve secondary excisions recorded, ten American among them, with one recovery.

In comparing the statistics of excision with those of amputation at the hip, and the temporizing treatment, the author emphatically declares himself in favor of the former, believing, however, that either method has its specific and circumscribed indications for which it should be performed to the exclusion of the other, and for which opinion he assigns unexceptionable reasons.

Thus for the first time in the literature of military surgery we meet with a well substantiated appreciation of excision of the head of the femur, and entertain no doubt that the proffered views of the author will henceforth be received as ruling.

From the brief analysis we have given of the contents of Dr. OTIS' late report, it will be self-evident that it is one of the most important documents of surgical science and practice, and it is to be regretted that the number of its copies debars it from general distribution. Abroad, it will be received with the highest and well merited encomium.

L. B.

ELECTRICITY IN ITS RELATIONS TO PRACTICAL MEDICINE. By Dr. MORITZ MEYER, Royal Counsellor of Health. &c. Translated from the 4th German edition, with notes and additions, by WM. A. HAMMOND, M.D., Professor &c., &c. New York: D. Appleton & Co., 1869. 8vo., pp. xxi, 497.

[For sale by the St. Louis Book and News Co.]

We have before us another one of the rapidly increasing number of American translations of German medical works. Dr. MEYER's book is one well deserving translation. It has been

one of good standing in Germany for a number of years, and attained to a third edition, which is the basis of Prof. HAMMOND'S version. This success has been reached in presence of the competition, in late years, of quite a number of reputable treatises on the same subject, among which we need but mention those of ERDMANN, REMAK, ROSENTHAL, ZIEMSEN, BENEDIKT, &c.

About a third part of the book is occupied by general considerations on electricity (friction e., galvanism and faradism), its effects on the various organs and tissues, the apparatus employed, and the methods of using electrical currents. After a short section on electricity in its application to anatomy, physiology and pathology, and a very long one (of over 100 pp.) on its importance in the diagnosis and prognosis of paralytic affections, we finally arrive at the consideration of electricity as a curative agent, and its uses in medicine, midwifery and surgery. This last section forms a large part of the treatise—nearly 200 pages. It is imbued with that degree of enthusiasm which is of advantage to the reader by instilling a wholesome interest in the subject of his study, yet which contrasts somewhat with the sentiment of ZIEMSEN, in his preface to "*Die Electricität in der Medicin*," in which he introduces local faradisation with the hope that the more general use of it on the part of physicians may result in more sober observations, and cause criticism to "cut down the number of miraculous cures with sharp shears; then will the therapeutic field of the electric current become narrower, but the indications more precise, the results obtained more reliable." It is true, between the date of that sentence and MEYER'S third edition, years have passed which have borne rich fruit, and accomplished, in some degree, the expectations of ZIEMSEN.

The translation is sufficiently well done. It bears few traces of being a translation at all, but yet a few. For instance, it is hardly justifiable to make use of a literal rendering of a German technical term, when a corresponding technical term is in common use in the English language. Thus *Brenneisen*, the German equivalent of the "actual cautery" of English-speaking surgeons, should not be translated "burning-irons" (p. 307). In his original remarks, Dr. HAMMOND is accustomed to write "insulate," in translating, "isolate" (*isoliren*). The latter word, we believe, is rarely used in English in the connection in which it is here found.

The publishers have given this seasonable translation of a valuable book—Dr. HAMMOND believes it the best which has yet appeared on the subject—very good typographical execution; but it is not as free from errata as is desirable. G. B.

PERCUSSION AND AUSCULTATION AS DIAGNOSTIC AIDS. A Manual for Students and Practitioners of Medicine. By Dr. CARL HOPPE, Assistant Physician, 6th Westphalia Reg. of Inf. Translated by L. C. LANE, M.D. Philadelphia: J. B. Lippincott & Co., 1869. 12mo., pp. 132.

[For sale by the St. Louis Book and News Co.]

“Though a compend, it contains far more than many of the large works on the same subject, being, in fact, a master-piece in both thoroughness and brevity.” This assertion in the translator’s preface is literally true as to the original, and in great measure, also, naturally, as to the translation. The term brevity is used, of course, with reference to the thoroughness of the book. The latter quality, however, is rather the merit of Prof. TRAUBE than that of the author. For although Dr. HOPPE says in his preface merely that “the views and teachings of TRAUBE . . . will receive special attention,” the whole book appears to us to be nothing more than a revised and well arranged edition of notes from TRAUBE’s lectures, so accurately does it correspond in all its essential features with our own notes of Prof. TRAUBE’s course in 1858-’59.* The principal additions can easily be traced to WINTRICH’s diffuse treatise on auscultation and percussion in VIRCHOW’s *Handb. d. spec. Path. und Ther.*

It must be acknowledged that the author has done his work well. TRAUBE’s teachings are characterized by their strict adherence to a purely physical basis; and although their exact accordance with the laws of physics is a little blunted by the compiler’s labors, yet the views themselves are well represented. The translator’s labor has been performed with far less care and understanding. While TRAUBE attaches importance to the simplicity and accuracy of his terminology, the translator, besides introducing unwarrantable Germanisms, creates sad confusion in

* The original of the work before us was published in 1865.

his versions. "Intensity," "strength," "force," are synonyms for *one* of TRAUBE's terms, which he is careful to define accurately. "Crepitation," "crepitant rhonchus," are designations which TRAUBE carefully avoids, or applies only to a variety of "râles with small bubbles." They are here, contrary to all usage, applied to all rhonchi. Confusion is likely to be caused by the translator rendering *Blasen* alternately "bubbles" and "vesicles," and certain to be caused by the translation of *grossblasig*, *kleinblasig* into "large vesicular," "small vesicular" (crepitation). *Herztöne* are, by turns, "tones," "sounds," and "murmurs." The translator speaks of "abnormal conditions of the cardiac murmurs," meaning sounds, and of "murmurs in the cardiac region," meaning murmurs. His "height" of the percussion sound is merely a Germanism for pitch, in accordance with which he designates the sound as "high" and "deep." "Loud" and "dull" are the adjectives TRAUBE applies to the extremes of intensity of percussion sound; yet the latter term is variously translated, as "dull," "deadened," and "muffled."

In all but the almost total loss of that precision and extreme conscientiousness so estimable in TRAUBE's oral instruction, the translation is well done. We gladly recommend it to both students and practitioners, as an exposé of the views of (in our opinion) the best auscultator now living. The typography also is deserving of praise.

G. B.

ARCHIVES OF OPHTHALMOLOGY AND OTOTOLOGY (Semi-Annual.) Edited and published simultaneously in English and German by Professor H. KNAPP, in New York, and Professor S. MOOS, in Heidelberg. Vol. 1, No. 1. New York: Wm. Wood & Co. Karlsruhe: Chr. Fr. Müller'sche Hofbuchhandlung. 1869. 8vo., pp. 364. Subscription price \$7.00 per annum.

This new enterprise of Drs. KNAPP and MOOS is a bold one, challenging comparison with the *Archiv für Ophthalmologie*, edited for many years by Professors GRÆFE, DONDEES and ARLT. It is devoted exclusively to original communications, and is designed to be a "special organ" for those engaged in the pursuit of ophthalmic and aural surgery. The opening number promises well for the success of the *Archives*. It contains seventeen papers on ophthalmological and ten on otological

subjects, all interesting, and of high scientific and practical value. Of the sixteen contributors to this number, seven are residents of the United States, one of Rio de Janeiro, one of London, two of Paris, and five of Germany. The two editors furnish, however, nearly half of the total number of pages, and ten of the twenty-seven papers. Especially valuable among the ophthalmological communications are Dr. KNAPP's illustrated case of *Embolism of a Branch of the Retinal Artery*; eight cases of *Rupture of the Choroid from Concussion of the Eyeball*, by the same author, and his report, with remarks, upon a *Third Series of One Hundred Cases of Cataract Extraction by the Peripheric-Linear Method* (modified Linear Extraction of v. GRAEFE); two cases, illustrated, of *Retinitis Leucæmica*, by Dr. OTTO BECKER; papers on *Entoptic Phenomena connected with the Circulation of the Blood*, by Dr. B. A. POPE, on the operation for the *Advancement of the Internal Rectus Muscle*, by Dr. R. LIEBREICH; on *Stricture of the Nasal Duct*, by Dr. E. WILLIAMS; on the formation of *Cysts in the Iris*, by Dr. L. WECKER; on the *Theory of Binocular Vision*, by Dr. H. KAISER, and *Contributions to the Pathology of Burns of the Cornea from Lime*, by Dr. H. de GOUVÉA. Of the otological papers, besides seven by the German editor, are—one by Professor W. ERB, on *The Galvanic Reaction of the Nervous Apparatus of Hearing*; one by Mr. JAMES HINTON, on cases of *Inflammation of the Tympanum*; and one by Dr. D. B. ST. JOHN ROOSA, on a *Case of Suppurative Inflammation of the Tympanic Cavity, induced by the use of Weber's* (Thudichum's) *Nasal Douche*.

The publishers have been most liberal in the printing and illustration of the *Archives*, but the translation and proof-reading of some of the papers from the German are rather carelessly done.

J. G.

TRANSACTIONS OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY; 6th Annual Meeting, held at Newport, R. I., July 21st and 22d, 1869. 8vo., pp. 75.

TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY; 2d Annual Meeting, held at Newport, R. I., July 20th, 1869. 8vo., pp. 27.

This is a conjoint publication of the transactions of the two Societies, in an octavo pamphlet of 102 pages, well illustrated by wood cuts and an excellent chromo-lithograph. It contains sixteen papers on ophthalmological and four on otological subjects, all of high scientific interest. Among the ophthalmological contributions we note, as of special interest, *A Case of Simple Synchysis*, by Dr. B. JOY JEFFRIES, of Boston; *A Case of Monocular Glaucoma supervening on Binocular Retinitis Hæmorrhagica*, by Dr. D. B. ST. JOHN ROOSA, of New York; papers *On Fracture of the Crystalline Lens in Persons Executed by Hanging*, by Dr. EZRA DYER, of Philadelphia; and on *A Method of Dressing Eyes after Cataract Extraction and other Ophthalmic Operations requiring Rest by Exclusion of Light*, by Dr. C. R. AGNEW, of New York; also descriptions of improvements in instruments and apparatus, by Drs. H. D. NOYES and E. G. LORING, of New York, Dr. E. DYER, of Philadelphia, and Dr. JOHN GREEN, of St. Louis. Besides these communications, the *Transactions* contain important discussions by Dr. H. KNAPP, of New York, upon the *Magnifying and Diminishing Power of Spectacles, as Modifying the Results of Observations for the Determination of the Acuteness of Vision*; by Dr. E. G. LORING, *On Relative Accommodation in Strabismus and Insufficiency of the Recti Muscles*; and on the question of the probable dangers attendant on the attempt to *Photograph the Interior of the Human Eye*, by Dr. B. J. JEFFRIES.

The *Report on the Progress of Otology*, by Dr. D. B. ST. JOHN ROOSA, is full, valuable and interesting, as are, also, the cases reported by Drs. W. W. MORLAND, *On Deafness in Connection with Pregnancy*; H. KNAPP, *On Purulent Otitis Media caused by the Nasal Douche*; and J. ORNE GREEN, on *Cases of Parasitic Growth (Aspergillus Glaucus) in the External Auditory Meatus*.
J. G.

THE SCIENCE AND ART OF SURGERY: Being a Treatise on Surgical Injuries, Diseases and Operations. By JOHN ERIC ERICHSEN, Senior Surgeon to University College Hospital, and Holme Professor of Clinical Surgery in University College, London. From the 5th enlarged and carefully revised London edition. Ill. with 630 engr. on wood. With additions by JOHN ASHHURST, JR., A.M., M.D., etc., etc. Philadelphia: Henry C. Lea, 1869. 8vo., pp. 1228.

[For sale by Keith & Woods, 217 North Fifth Street.]

We find it unnecessary to comment on a new edition of ERICHSEN's valuable treatise on surgery, as it is the universally approved text-book in our schools of medicine, and well and favorable known to all our readers. It is proper only to allude to the considerable enlargement of this edition, both in size and in new material, that brings the volume as nearly as may be up to date. The volume has thus become too large to be handled with comfort, and a future edition, we trust, will bring about its division into two, as has already been found expedient in the 5th English edition. Indeed the present issue would have been the better for it.

The chapter on Ophthalmic Surgery introduced into this edition is by Mr. STREATFEILD, one of the Ophthalmic Surgeons to University College Hospital, and Surgeon to the Royal Ophthalmic Hospital, London.

Extracts from Current Medical Literature.

OPHTHALMOLOGY.

1. *Extraction of Cataract.*

Professor KNAPP (*Archives of Ophthalmology and Otolaryngology*, Vol. 1, No. 1), reports a third series of one hundred extractions by v. GRAEFE'S "Peripheric-Linear" method (Modified Linear Extraction), with these results:

Perfect (V—1 to 1-10).....	82
Imperfect (including undetermined results).....	15
Total and irredeemable failures.....	3
Total.....	100

Tabulating the three series now reported by KNAPP, we have the following results:

	Cases.	Per cent.
Perfect (V—1 to 1-10).....	246	82.
Imperfect (including undetermined results).....	47	15.67
Total and irredeemable failures.....	7	2.33
Total.....	300	100.

From the last (44th) Annual Report of the Massachusetts Charitable Eye and Ear Infirmary (November, 1869), we learn that the "Peripheric Linear" extraction has been performed fifty-two times, with these results:

	Cases.	Per cent
Successful (useful vision).....	43	82.7
Undetermined.....	5	9.6
Unsuccessful.....	4	7.7
Total.....	52	100.

Forty-seven extractions by the same method, reported by Drs. E. and A. D. WILLIAMS (*Transactions Am. Ophthalmological Society, 5th Annual Meeting, 1868*), yielded also excellent results, viz.:

	Cases.	Per cent.
Reading <i>small</i> type (Diamond to Long Primer)....	38	80.9
Imperfect (including undetermined results).....	4	8.5
Total and irredeemable failures.....	5	10.6
Total.....	47	100.

The popularity, with the best operators, of the "Peripheric-Linear" method seems still to be on the increase, giving promise of a rapid accumulation of statistics sufficient conclusively to settle its especial claims to adoption in preference to the older operations.

2. *Fracture of the Crystalline Lens in Persons executed by Hanging.* By EZRA DYER, M.D., of Philadelphia.

[*Transactions Am. Ophthalmological Society, Third and Sixth Annual Meetings. 1866 and 1869.*]

Dr. Dyer's observations in this entirely new field are so interesting that we give a digest of his two papers on the subject:

ANTON PROBST was executed June 8th, 1866, at 11 A. M. The scaffold was made with a drop floor, the rope was five-eighths of an inch in diameter, five feet six inches long, and the fall was three feet.

Post mortem examination, thirty-five minutes after the drop fell.

The examination of the eyes of PROBST with the electric light gave the following results: Right eye—there was a line running transversely across the lens, and about a line below the center. From it, at various angles, ran short and long fine lines, very near together, but not regular. This line had an iridescent or opalescent appearance, and as it was illuminated a gentleman standing behind remarked that it looked like a crack in a cake of clear ice. At first I thought it a film of mucus on the cornea, but soon saw that it was in the lens. It was a fracture involving the anterior capsule, and extending in a horizontal plane backward, into the substance of the lens. It gave even to those present, unaccustomed to the ophthalmoscope, the idea of a plane extending backwards.

On rotating the eye downwards, the fracture could be seen to stop about the center of the lens, and to end in several lines projecting backwards, longer than the rest. The little fissures running upwards and downwards from the main transverse fissure were of different lengths; more than half of those on the lower side ran down to the margin of the pupil, almost all those on the upper side extending above the horizontal diameter of the lens, and the longer ones perhaps a line further.

The whole lens had a most beautiful iridescent appearance, which was greatest in the line of the main fissure. This was determined by strong convex glasses. Nothing of the fundus could be seen, not even a trace of a vessel.

The left eye presented the same transverse line, a line and a half below

the center of the lens. It was evidently the same thing as in the right, only less in extent. The line had very short lines running upwards and downwards, which were very close together. They could only be seen with a strong glass, and gave the line a feathery look. I judged that here the crack was confined to the capsule. The line was perfectly evident to a person standing three feet behind the examiner. The fundus could not be seen. Neither pupil contracted under the light. The body was then laid on the table, and the battery used to contract the various muscles of the body. The flexors of the arms and legs responded, and I tried, from curiosity, to stimulate the contractile fibres of the iris, but without success.

The eyes were then removed, and four hours afterwards carefully examined. Dr. S. W. MITCHELL assisted me. The condition of the right lens was precisely as described above. Lens in place; fracture transversely from *edge* to *edge* of the capsule, one line below and parallel to the horizontal diameter of the lens. From this crack a fissure extended backwards into the substance of the lens as far as the middle; the suspensory ligament was not ruptured. Retina not detached; eye normal, except as above mentioned. Left eye showed a line difficult to distinguish, but made out with certainty, corresponding in position to that of the right eye. It was undoubtedly a fracture of the anterior capsule. The weight of the fall coming principally on the right side (the knot being under the left ear) probably explains the difference in the condition of the two eyes.

The unexpected phenomena observed in this case led Dr. DYER to make some experiments upon dogs. The following is a *résumé* of the results of the first observation and first series of experiments:

One man and three dogs were violently hanged. The man and two of the dogs, *i. e.*, three out of four subjects, showed this peculiar lesion. The man and dog No. 1 died without struggle. In both the fracture extended through half the lens of one side and across the capsule of the other. Knot on the opposite side of the greatest lesion in both cases. Dog No. 3 died with convulsions, which lasted a short time. Lesion found in one eye well marked, the other eye normal. Dog No. 2 died with prolonged convulsions; no lesion could be observed. . . .

The following are the notes of several executions at which I have been present since my report of the case already mentioned. I have been able to examine the eyes of the criminals both before and after death. ALBERT TENFEL, æt. 24, was executed at Doylestown, Penn., April 18, 1867. He attempted suicide by strychnia six hours before execution, but the physician to the prison was early apprised of it, and by emetics and other means frustrated his attempt on his life. Vision in both eyes normal at an examination the day before execution. The fall was five feet; knot under left ear; the body was suspended twenty-five minutes; easy death; very slight convulsions; neck not dislocated.

First examination five minutes after the body was cut down. In both eyes pupil well dilated; media perfectly clear; fundus normal.

Second examination, one hour and five minutes after execution. Left eye, horizontal fracture one and one-half lines below the center of the lens, extending entirely across it. The line of fracture is not true, as if drawn by a ruler, but irregular, as if drawn by a person with an unsteady hand. At the external end a line runs upward, beginning at the margin of the pupil; at the internal end a line runs directly downward. These look exactly alike, and could not be better described than by comparing them to a tear in a sheet of note paper. Right eye examined at the same time. Four very fine lines were seen running toward the center of the lens in the lower nasal quarter. They seemed to be simply in the capsule, but were perfectly apparent. The left eye was extirpated, and on dissection the results of the ophthalmoscopic examination were fully verified; not only the capsule, but the substance of the lens was fractured.

GOTTLIEB WILLIAMS, æt. 34, was executed in Philadelphia, June 4, 1867. Drop four and one-half feet; the knot slipped so as to be under the occiput; suspended thirty minutes; convulsive movements lasted five minutes; neck not dislocated.

Examination at 11.54 A. M., five minutes after the body was cut down. Appearance of eyes natural; no protrusion; no injection of conjunctival vessels; corneæ clear.

Right eye, pupil well dilated; media clear. Small point seen on the anterior capsule of the lens in the median line, just above the margin of the pupil. At 12 M., spot more distinct; at 12.26 P. M., spot still present, somewhat elongated. Optic nerve normal; retinal vessel small.

Left eye, pupil smaller than the right; cornea clear; lens in normal condition; optic nerve normal; arteries small. I was not allowed to remove the eyes.

At Worcester, Mass., September 25, 1868, SILAS JAMES and CHARLES T. JAMES were hanged at the same time. The drop was four feet. SILAS JAMES had a cataract in the left eye of several years' standing, probably the result of irido-choroiditis. The right eye was normal. Eyes examined thirty minutes after execution.

Right eye normal in every particular. Left eye, pupil well dilated; cataractous lens dislocated downward and outward: upper and inner third visible above the pupil. Remains of the detached posterior synechiæ well marked.* The neck was dislocated; no struggle.

CHARLES T. JAMES, hanged at the same time, had normal eyes. After the execution the pupils were moderately dilated. Left eye normal. Right showed small horizontal fissure in capsule of lens. Thirty minutes later this fissure was well marked and easily seen even by side-light illumination. It certainly extended into the substance of the lens. Unfortunately I was not permitted to remove the eyes from the bodies.

* It is to be regretted that no attempt was made to break these by atropine before execution, but no opportunity offered.

3. *Stricture of the Nasal Duct.* By E. WILLIAMS, M.D., of Cincinnati.

[*Archives of Ophthalmology and Otology*, Vol. I, No. 1, 1869.]

A brief notice of Dr. WILLIAMS' method of treating lachrymal obstructions has already appeared in this Journal, Vol. v, N. S., No. 1, pp. 11-26.

For more than seven years I have pursued a method that has afforded a much larger percentage of permanent results than any other, with vastly less suffering to the patient and trouble to myself. In the *Cincinnati Lancet and Observer* of November, 1864, I published my first account of the procedure, and five years more have only confirmed my then very favorable experience. *The essential and peculiar feature of the treatment consists in causing the patient to wear the style constantly during the whole course of treatment, instead of its occasional temporary introduction.* True, BOWMAN had suggested the wearing of a small wire for a few days at a time, but this I found insufficient.

WARLOMONT, in the *Supplement to Mackenzie*, describes a case of a young girl whom he made wear a small silver style for a month after cauterization of the sac with chloride of antimony. But it was not recommended as a uniform practice. So general was the aversion to the old method of wearing a stile (of whatever material) through the fistulous opening in the skin, that the idea of returning to the same treatment in a modified form was not well received. The failure, as I conceived, and as my experience has demonstrated, did not attach to the use of the style as a means of dilatation, but to the *artificial opening*, whether through the skin or the conjunctiva, in which it was worn.

The stricture of the ductus ad nasum was no doubt cured in most or all of the cases, but in accomplishing this a worse condition was brought about by the injury done to the sac, and the parts overlying its junction with the nasal duct, by the presence of the style.

Its contact with the raw edges of the fistula caused inflammation, ulceration, thickening, and subsequent rigid contraction, with, frequently, complete closure of the sac at the commencement of the nasal duct. Thus there was produced a mechanical difficulty in the absorption of the tears, as well as a new obstruction to their passage from the sac downward. It is perfectly clear that the wearing a style through such an opening was altogether different from the method which I have introduced. The presence of a smooth silver style, even of large size, in a natural opening, lined by *mucous membrane*, is tolerated with impunity, and the results are altogether different. The reintroduction of the continuous use of the style, under more favorable auspices, in the treatment of stricture, is all that I claim.

I had a series of silver styles made and numbered from 5 to 9, inclusive, of the bougie scale, my *smallest* corresponding to BOWMAN's largest, and being about one-sixteenth of an inch in thickness, the largest being

one-eighth of an inch. They are from one and three-quarters to two inches long, to suit different cases. slightly conical at one end and flattened at the other. I order them straight, and bend them in each case to suit the length of the nasal duct and the peculiar conformation of the inner canthus.

I have modified my procedure in several particulars since my first published paper. As before, I slit up the superior canaliculus, but no longer with WEBER's knife. A delicate pair of scissors, with one branch probe-pointed and slightly longer than the other, answers the purpose admirably, and is much quicker done and less painful than the knife, for obvious reasons. I do not now cut the sac, but simply slit up the canaliculus down to it, or nearly so. If I there find its inner orifice dilatable, I expand it with a conical probè till it will admit BOWMAN's No. 6. Should the canaliculus be closed near the sac, I guide the point of a cataract knife along the probe and puncture the sac. This done, I at once proceed to explore the sac and duct. For this purpose I use generally a set of probes like BOWMAN's, except that they terminate by bulbous ends and are much smaller for about half an inch above, so as to yield more easily. . . . They are very *insinuating*, and useful in exploring the tear passages. After passing one of them, I learn the peculiarities of the canal to be traversed, and can then put BOWMAN's No. 6 through with greater certainty and assurance. If the stricture is not very tight, I soon coax one of these flexible probes through into the nose, using but very moderate force. In case the resistance is too great to be overcome by these probes or small bougies, or flexible rubber probes, I lay them all aside and force the stricture either with No. 6 or with WEBER's bicone, or what is still safer and better, a probe of the following description: It is of silver and double, like BOWMAN's probes. At each end is a conical enlargement of different sizes, which reaches its greatest thickness at from three and a half to four lines from the end, and then diminishes rapidly again to about one-fourth of the size of the expansion. The smallest expansion is about one line in thickness, and the largest one and a half lines. If force must be used to pass the stricture, the larger the probe the less danger there is of making a false passage. The probe just described (I do not remember whose idea it is) is admirably adapted for this purpose. The thick part fills the duct and keeps the conical point in the axis of the canal. With reasonable care to keep the instrument in the direction of the canal, there is no possible risk of piercing the mucous membrane. Besides, it enables us to determine the exact seat and number of the strictures, which is impossible with a probe of uniform size or gradually increasing all the way, as in WEBER's bicone.

Having now entered the nose, I leave the probe a few minutes, and then withdraw it in favor of a style that I introduce to remain. Before removing it, however, I mark the point that corresponds to the place of junction of the sac and canaliculus, so as to measure off the required length on the style No. 5, which is now to be bent to fit, and passed in to remain. With a pair of pliers I bend the flattened end so as to make it

hook down over the lower lid. A second bend outward, just below the first, makes it fit much better and prevents the lid from dragging the hook round against the eye. This is next passed down and left in, if it fits at all well; if not, it is again withdrawn and bent to better suit the peculiar shape of the canthus. Instead of flattening the upper end, I now generally leave it round and slightly smaller for about half an inch from the end. In most cases the pain, caused by the presence of the style, passes off or abates very much in a few hours, so as to become endurable. It is a rare thing now to find a patient that will not bear the style from the very first. Should the pain be excessive and the swelling increase for several hours, in spite of morphine internally and cold water locally, I take it out and try it again the next day or the day after. I always fit the patient with the permanent style at the first operation, and rarely find that it is not borne as well as later. In 48 hours I usually find the style so loose that it can easily be withdrawn and the sac washed out with tepid water. If the water passes in a free stream through the nose, the passage is free and the style all right. Should the water not pass at all, or only imperfectly, there is a stricture at the nasal end of the duct and the style is not long enough. The bulbous probe is now passed down, the canal explored anew, and a longer style adapted. I generally pass the style down till its nasal end rests against the floor of the meatus or almost touching it. Strictures at the nasal outlet of the duct require more care and longer styles than those higher up in the canal. For washing out the sac I find the hard rubber dental syringe the best. I have them made with a straight, short, conical nozzle to receive a silver point, bent at right angles, to be slipped over it and made tight. Of these points I have three sizes, the largest of the size of No. 5. In very timid and sensitive patients I sometimes leave the style several days, or even a week, before taking it out the first time. Indeed, I frequently send the patient home, if he does not reside in the city, and leave it in several weeks, after I am sure it is right, and going to be well tolerated. Where there is much discharge I remove the style and wash out the sac once a day. When there is little or no secretion, every two or three days will suffice. As soon as No. 5 is quite loose and easy, I put in No. 6, bending it in the same form. When this size is attained, I commence the astringent injections each time, or every second or third day according to the amount of blennorrhœa, passing a few drops through after the water, and then at once reintroducing the style. The solution I generally employ is 20 grains sulph. cupri to an ounce of water. If the parts are very sensitive and inflamed, I adopt a much weaker solution (2 or 3 grains) in the commencement, and gradually increase the strength. Nitrate of silver may in some cases be better borne, varying in strength from 10 to 20 grains, according to the indications. These injections, with astringents, form a very important part of the treatment where there is blennorrhœa, with or without dilatation of the sac; and it is often very gratifying to see how rapidly the discharge is controlled by them, and the sac made to contract to its normal size. As the state of the mucous membrane improves, the astringents are to be gradually diminished in frequency and in strength. In three or four

weeks, usually, No. 7 may be reached, and finally No. 8, which is to be worn for several weeks or months longer, till all suppuration has ceased, and the sac contracted to its natural capacity. There is much more danger of not wearing the style long enough than too long. The whole duration of the treatment lasts generally about three months, but it varies very much in different cases. I now rarely use the No. 9. It is very large, heavy, and somewhat disagreeable, as well as difficult to bend suitably. The No. 8 is large enough, especially when it is worn *long enough*.

After the first few days the style causes no special inconvenience, and the patient can pursue his usual avocation. By selecting a style of the right length, and bending it nicely, it can be so closely adapted to the corner of the eye as to attract but little attention. Instead of refusing to wear styles the patients are often reluctant to leave them off, finding so much comfort from their use. In a few cases the contact of the style produces little fungous growths at the opening in the sac, which can be readily snapped off. Rarely, when the outward bend, below the hook, is not sufficient, the sides of the slit-up canaliculus grow together external to the style; but this has no special disadvantage. The style should always fit comfortably so as not to drag on the lids, and be perfectly smooth.

The advantages of this method over BOWMAN's, and all others, in my experience, are many. In the first place, it effects a larger percentage of complete cures. All are greatly and permanently benefited, and the immense majority completely relieved. Of the hundreds of cases which I have thus treated in the past seven years, I do not remember more than five or six that have not been entirely relieved; and even their condition is far better than before the treatment, troublesome epiphora being now the only inconvenience, no serious inflammation, no abscesses, and but little mucous secretion. Many patients complain simply of watery eyes while they retain the styles; but the epiphora nearly always ceases in a few weeks, or at most months, after leaving them off. Of all the cases treated, I have found it impossible to get through the nasal duct in but two, and one of them was a case of long obstruction following fracture of the ossa nasi.

In view of the fact that I treat all my cases by this method, in many of them both sacs having to be treated simultaneously, and that I have had the usual number of the worst complications in the worst class of subjects, I know that my results are far better than any I have seen or read of in the experience of others. That dilatation, as practiced both by BOWMAN and WEBER, does not afford results uniformly satisfactory, is quite evident from the recorded statements of many writers, and the recent serious proposition of extirpating the gland, or of obliterating the sac, as in times of yore, as a common treatment for epiphora from stricture of the ductus ad nasum. Certainly the occasional passage of even a small probe through a stricture, and the use of injections, often affords permanent relief, and nearly always temporary amelioration.

Still the success is not nearly so prompt and permanent as may be obtained by the modification which I have described. Although once addicted to it, I have not obliterated a tear-sac for the past seven years.

4. *On the Use of Leaden Styles in the Treatment of Lachrymal Obstructions.* By JOHN GREEN, M.D., of St. Louis.

[*Transactions Am. Ophthalmological Soc'y, Sixth Annual Meeting, 1869.*]

In a communication to this Society at its last annual meeting, I brought forward a modification of Dr. E. WILLIAMS' plan of treating lachrymal obstructions by wearing for several weeks a silver style, inserted through an opening made by slitting the upper canaliculus into the lachrymal sac. The modification proposed by me consists in the substitution of the softest and most flexible lead wire for the rigid silver styles employed by Dr. WILLIAMS. The advantage claimed for this substitution depends upon the fact that the bony nasal duct is not quite straight, but is curved in a somewhat variable and therefore uncertain direction. Besides this irregularity in the curvature of the bony duct, the position of the lower opening into the inferior meatus of the nose is equally variable, thus necessitating, in some cases, the passage of the style nearly to the floor of the nostril. In consequence of these variations, it is often difficult to pass a stiff probe entirely through the obstruction, especially when it occurs at the lower orifice of the duct. A leaden probe of the same or larger size passes, however, with comparative ease, adapting itself readily to the sinuosities of the passage, and causing comparatively little pain by its continued presence. The leaden styles are therefore much more readily tolerated, and the smaller sizes can be more rapidly exchanged for larger, than is the case with the more rigid instruments of silver. The period of treatment is thus materially abridged, especially as experience has shown that less dilatation is necessary than with the silver styles, and that medication of the sac by injections may, in most cases, be dispensed with.

The difference in the effect produced by wearing the flexible leaden styles, as compared with the rigid instruments of Dr. WILLIAMS, is important. By the use of the silver styles the lachrymal passages must, in many cases, be not only dilated, but also changed somewhat in direction to conform to the shape of the style; with the leaden instrument, on the other hand, it is simply dilated. This difference is well illustrated by the fact that the leaden probes always adapt themselves to any irregularities in the direction and curve of the nasal duct, and exhibit, after they are withdrawn, a very considerable curvature, varying in different cases, but uniform in the successive stages of the treatment of the same case.

The only drawback to the usefulness of this plan of treatment has been the difficulty of manipulating the very flexible lead wire, especially the smaller sizes. This is now remedied by making the styles tubular, and inserting a stylet of tempered steel wire. The stylet is withdrawn as soon as the style is placed in position, and the projecting top of the latter is

bent over so as not to interfere with the movements of the eyelids. In this way the styles are readily introduced even to the floor of the nostril, and yet can be worn with, in most cases, only a very slight degree of discomfort.

The styles which I now use are of seven sizes, extending from seven-eighths of a millimetre to two millimetres in diameter, and numbering from twenty to fourteen of the common English wire gauge. Only the three or four smaller sizes require the steel stylet, but the larger sizes also may be made tubular in order to reduce their weight.

This method has proved extremely convenient in the treatment of certain obstinate cases of catarrh of the lachrymal sac, with obstruction at the lower end of the nasal duct. In treating such cases by Mr. BOWMAN'S method, it sometimes happens that little or no permanent effect follows the successive introductions of the probe, but that by wearing a rather large style for a week or two, a free passage is opened. It is quite important, therefore, to be able to dilate the lower orifice of the duct with the least possible interference with the integrity of the bony portion of the canal; this indication is much more perfectly fulfilled, and the desired end more quickly reached, by the use of the flexible leaden styles than by the rigid ones used by Dr. WILLIAMS.

The use of metallic styles in the manner recommended by Dr. WILLIAMS, and especially of leaden styles, as described in this paper and in the last volume of these *Transactions*, will, I believe, be accepted as a valuable addition to the means previously at our command for the treatment of those severer and more obstinate cases of lachrymal obstruction in which the destruction of the sac by the hot iron or by caustic is still frequently practiced. In the milder forms of obstruction, however, which constitute the great majority of cases treated, I prefer Mr. BOWMAN'S admirable method, by the intermittent use of probes, to all other known plans of treatment.

5. *Keratomalakia in young Children, appearing under the form of Acute Xerosis, dependent upon Encephalitis.*

By Dr. HIRSCHBERG. (Berlin, 1869.) [Translated for the ST. LOUIS MED. AND SURG. JOURNAL by Dr. N. C. WASHINGTON.]

After Professor VIRCHOW had demonstrated, many years since, that in new-born children there occurs a peculiar change in the structure of the brain, viz: formation of granular cells in the white substance, with hyperæmia, which has since been confirmed by the investigations of KLEBS and COHNHEIM, Prof. v. GRAEFE described a peculiar destruction of the cornea by ulceration, which occurs in children of a few months of age, accompanied by marasmus of high degree, but without it being necessary that characteristic symptoms of any local or constitutional disease should appear, while the autopsy, according to Prof. KLEBS, at least in two cases, proved the first-mentioned form of change in the structure of the brain. The disease appears in the cornea of both eyes, with a yellowish infiltration, and necrotic destruction of the same, without any reddening, swell-

ing, or suppuration of the mucous membrane, of which, indeed, the ocular portion appears pale, and covered by fine epithelium scales; in a word, attacked with a sort of acute xerosis.

Later, in January, 1867, Prof. VIRCHOW* published his investigations on the affection of the brain in question, and stated that in a great number of children still-born, and in a not inconsiderable number of those dying soon after birth, considerable changes are found in the central nervous system, consisting, for the most part, of fatty degeneration of the white substance of the great hemisphere and spinal cord, a process which must be regarded as Encephalitis or Myelitis Interstitialis Diffusa, and which appears analogous to the degeneration of the retina, occurring in connection with Bright's disease of the kidneys. The first stage of the change presents itself sometimes under the appearance of an acute hyperæmia, sometimes with an augmentation of the cellular elements. The vessels of the white substance are so completely filled that it acquires a gray, reddish, and sometimes, indeed, hydrangia color. In an ætiological point, the acute exanthemata are not to be neglected, viz., small pox, syphilis, etc., and also the puerperal condition of the mother.

A doubt has been expressed by several persons to me as to whether the affection of the brain described by Prof. VIRCHOW, and that which occurred in the cases of keratomalakia of Prof. VON GRAËFE, were identical, as the first spoke only of still-born children, or those living but a few days after birth, while the latter referred chiefly to children from two to four months of age. In addition, also, there was no reference in Prof. VIRCHOW's article to the secondary corneal affection. I am myself inclined to the opinion that, in the majority of the cases, the affection is one and the same, or, at least, that there is only a question of difference in degree. The agreement in anatomical characters is beyond question, as follows from a comparison of the results of the minute dissections of Professor KLEBS with the description given by Professor VIRCHOW, which I can fully confirm from my own investigations.

Prof. VIRCHOW is also, as I know from a verbal communication, not at all inclined to limit the brain affection exclusively to still-born children, or to those dying within a few days after birth. He says, in fact, "that he had confined himself to these cases in his publication because he intended merely to propose certain medico-legal questions, and therefore had not paid any special attention to the occurrence of keratomalakia." It may be that ulceration of the cornea makes its appearance in but a small proportion of those children who suffer encephalitis infantilis, and if one is a friend of hypothesis, one can perhaps explain the appearance or non-appearance of the corneal affection, in the different cases, by a different location of the cerebral affection. One must, however, confess that to decide this important question, statistical material is as yet completely wanting. In any case, encephalitis is frequently found in children that die before birth, or in the first few days after, and certainly not

* *Archiv*, Vol. xxxviii, p. 127, following. Cf. official account of the proceedings of the Assembly of German Naturalists in Hannover, 1866, p. 212.

rarely in children who die in from two to five months after birth. On the contrary, keratomalakia caused by encephalitis is very rarely seen at the former age, and in the latter not frequently, for in the clinics of von GRAEFE, where seven thousand new patients present themselves in a year, only nine such cases have been observed.

Although my own observations on the ulceration of the cornea caused by this diffuse change in the brain, have remained rather fragmentary, yet I will not forbear to give briefly the results, especially as I am able to add three new cases to those already published. The observation of the occurrence of the disease in groups, or, if you please, the epidemical appearance of the affection, was confirmed. During the summer of 1867, in a short period of time, six cases were observed; afterwards, only isolated cases occurred. At present, during the last two months, there occurred seven cases in the clinic. Further, the absolute fatality of the disease was also confirmed, although the little patients in the beginning of the affection of the cornea frequently manifested no general symptoms of extraordinary gravity, and an ordinary observer would never have imagined that life was threatened; at least members of the profession were in a measure surprised when we predicted with certainty the fatal termination. One case seemed in the beginning to confute this proposition, but only to confirm it completely in the end. In an ætiological point of view, I would mention that the mother was attacked with puerperal fever on the third day after labor, and succumbed to it on the 13th day. The patient, aged four months, was considerably sunken under diarrhœa and the emaciation consequent upon it, and although on the right eye there was a complete and on the left a partial prolapse of the iris, yet, under the careful application of the compressive bandage, alternating with warm fomentations of chamomile tea, we succeeded in obtaining a tolerably quick cure, with a staphylomatous cicatrix of the right eye, and a leucoma adherens in the left, so that, in the latter, we had hopes of the recovery of sight by means of a future iridectomy. Furthermore, we succeeded in so raising the strength of the child, under a tonic regimen, that we ventured to indulge in the hope of saving life, but at the end of two months death occurred unexpectedly. The course of the disease in this case was an exception, as death generally occurs some days or a few weeks after the attack of the eyes, during the period of suppuration, or certainly before the commencement of cicatrization. As an example of a particularly rapid course of the disease, I mention the case of a girl of four months, from the practice of Dr. SLAVITZINSKI. She was brought into the clinic of von GRAEFE, May 20th, with the typical image of an ulcer of the cornea on the right side, which was followed by a prolapse of the iris, while the rest of the cornea was still in a measure free from marked disease; but the eye seemed doomed to rapid destruction from the xerophthalmic habitus. The affection of the eye had developed itself, according to the account furnished, in twenty hours. Moreover, the child had shown, during the last week, evidences of disturbed digestion, but no nervous symptoms. On the day after her entry into the clinical wards I found the prolapse of the iris on the right eye doubly increased, with

beginning destruction of the cornea; on the left eye a large ulcer of the cornea, quite transparent; in the anterior chamber of the right eye was seen a large drop of pus. Death ensued on the 26th of May, at which time there was in the right eye a total prolapse of the iris; on the left a large transparent ulcer, occupying the half of the cornea. I will not dwell further on particulars, as this is the type of the disease as sketched by Prof. v. GRAEFE (L. C., p. 253).

Children, after having been perfectly healthy, fall into a progressive marasmus under disturbances of digestion and assimilation, suffering more or less from anorexia, diarrhœa, and more rarely vomiting. After this has lasted some weeks, or even months, there appears, from the second to the sixth month for the most part, the rapid acute xerophthalmic habitus. At most, there is first observed a polished, transparent ulcer of the cornea, in the place of white, yellowish necrotic infiltration, and what is more rare, the circumcorneal zone partaking in the purulent infiltration. As the disease progresses, if death does not take place sooner, pus and blood appear in the anterior chamber, iritis ensues, and a complete prolapse of the iris, after the rupture of the cornea. At length, in exceptional cases, cicatrization may commence in the destroyed anterior portion of the bulb, or panophthalmitis may ensue from infiltration of purulent blood into the vitreous humor. The progress of the disease is essentially without fever, except that a short time before death—from one to two days—an elevation in the temperature has been observed. In the typical cases, the usual symptoms of a brain affection were either completely wanting, or they were insignificant (a small degree of stiffness in the neck a few days before death) certainly a most striking phenomenon, in a process that is caused by a diffuse change in the brain, but for which we have of late found an analogy also in adults. I refer to the different changes in the spinalcord described by WESTPHAL.* Death ensues either with increasing exhaustion, or with addition of broncho-pneumonic affection or general convulsions. The anatomical changes are only to be made out with the assistance of the microscope, as the macroscopic changes may be very insignificant, nay, more, entirely wanting. . . .

We have been compelled, by want of space, to omit the histories of three cases of this important disease, which are reported at length in Dr. HIRSCHBERG's paper.

Thus much, at least, results from the observations and researches of Prof. VON GRAEFE, as also from the cases now communicated, that, how defective soever the actual material may be, as well with respect to the number of dissections, as in one case in regard to the incompleteness of the same, it is clearly proved that there is a *peculiar form of ulceration of the cornea* which appears under the form of an *acute xerosis* in children from two to six months of age, which leads to death under disturbances of digestion, but for the most part without decided *cerebral symptoms*, but in which the autopsy reveals an *essential change in the texture of the*

* VIRCHOW'S *Archiv*, Vol. xxxix, p. 604—Vol. xl, p. 226.

brain, which Prof. VIRCHOW has named Encephalitis infantilis. Important in practice it seems to me, as a result of experience, that the prognosis must be given as fatal, even if the symptoms in the beginning may not appear as if menacing the life of the little patient. With this I will not create a prejudice against therapeutical experiments, which might be crowned with happier results than my merely expectant treatment. On the contrary, I hold it to be the duty of every physician, in every case not entirely desperate, to try to effect a strengthening of the general system, as well as to undertake a careful treatment of the eyes (by compress and bandage, with alternating chamomile fomentations).

So long as the affection in the brain remains an interstitial one, a recovery of the eyes is not impossible, as, further, the possibility of a cessation of the affection has been proved by experience. In the greater number of cases, however, in view of the destructive character of the ulceration, leading certainly to a double blindness, death may be regarded as a relatively favorable issue. Finally, I will yet remark that I am conscious how many questions as to the pathology, and particularly as to the pathological histology of the cerebral affection, wait still for their solution: how, namely, the normal texture of the child's brain has not yet been satisfactorily investigated; how, further, the signification of the granular cells, that have been found in the central nervous system under different circumstances, is still as capable of discussion as in want of it.

All these are difficult questions, the discussion of which lie outside of the plan of this strictly practical communication.

6. *Isolated Rupture of the Choroid, resulting from Concussion of the Eyeball.* By Dr. H. KNAPP.

[*Archives of Ophthalmology and Otology*, Vol. 1, No. 1, 1869.]

The bad effects of concussions of the eyeball have, undoubtedly, been noticed as long as there have been careful observers of eye diseases. Not a small number of cases are on record in which sight was impaired or lost after an injury to the eyeball or its surroundings, without any perceptible lesion of its tunics. Very different explanations have been given of these distressing consequences, arising from hurts apparently insignificant. The nervous system in general, the vaso-motor nerves in particular, the retina and optic nerve, it is alleged, have all suffered from injury and undergone minute molecular changes. All this is no more than conjecture. Whenever the blow has hit the orbital borders at the same time as the eyeball, which in most cases will have been inevitable, a fracture or fissure of some bony part at the base of the skull has been suspected. The broken bone may have lacerated or compressed the optic nerve or the chiasma nn. opt.; or else the ensuing hæmorrhage may have made its way into the loose tissue, between the internal and external sheath of the optic nerve, and diminished or destroyed by pressure the conductivity of the nervous fibres; or the resulting inflammatory exudation

following the injury may have involved the optic nerve or the chiasma. These assertions are not entirely hypothetical, but have, in rare instances, been demonstrated by post-mortem examinations.

More frequently, however, the ophthalmoscope reveals that the cause of the impairment of vision after concussion of the eyeball is a *rupture of the choroid*, rarely combined with laceration or detachment of the retina. A great many observations regarding concussion of the eyeball, made before the discovery of the ophthalmoscope, have now lost their value. True it is, indeed, that blindness or impairment of vision has been observed after a blow on the eye, in cases in which neither the external nor internal coats presented any change even upon the closest scrutiny of competent ophthalmoscopists. As far, however, as my own personal experience goes, such cases must be extremely rare. I do not, at this moment, recollect one single case of concussion with noticeable impairment of vision, where I could not see some definite change within the eye, or where there was not a combination with such cerebral symptoms as to indicate a deeper-seated lesion. . . .

Among about 18,000 cases of eye disease which came under my observation, I met with and diagnosticated, beyond the possibility of a doubt, more than one dozen of isolated ruptures of the choroid after a hurt on the eyeball; but I feel inclined to believe that a great many more cases which are reported in my journals under different names, such as traumatic intraocular hæmorrhage, traumatic iritis and iridochoroiditis, ought to have been classified under the head of choroidal ruptures. . . .

Since Prof. v. GRAEFE described, in 1854, the first two cases of choroidal rupture diagnosticated with the ophthalmoscope, every ophthalmologist must have met with a number of similar cases, if he has directed his attention to the peculiar image this lesion shows through the ophthalmoscope. This image in its typical form represents a curved white streak, more or less concentric with the circumference of the optic disc, having one-half the diameter of the disc in breadth, and two to three times the diameter of the disc in length, lying between the optic disc and macula lutea. From this typical form there are a number of variations, the most common of which are the following: the streak is sharply curved like the elbow, one branch lying on the outer, and the other on the lower, or less frequently, on the upper side of the optic disc; rarely the line of rupture runs in a horizontal direction. Not infrequently two and even more fissures are seen, running more or less parallel with one another; sometimes they are connected by transverse or oblique fissures, and not very seldom they bifurcate at one or both of their extremities. The retina, with rare exceptions, is uninjured. The *amount of hæmorrhage* produced by these isolated choroidal ruptures seems to vary greatly. Sometimes no extravasation has been observed, even in recent cases; generally it is inconsiderable, and confined to the near neighborhood of the rent; in rare instances blood enters the vitreous, and even the aqueous chamber. The trifling amount of extravasation in most cases, after rupture of the vascular tunic of the eye, is an astonishing fact, which, nevertheless, is not without analogy. . . .

The *secondary changes* of the injured parts also display a great variety. Sometimes there is very little irritation, sometimes a certain degree of inflammation of the internal tunics, which may pass away without damaging the retina or the dioptric apparatus, as we have seen so strikingly illustrated in our former case; but these happy issues are rarer than the unfavorable ones. The visual power remains more or less weakened, and sometimes is totally destroyed. Not infrequently, the impairment of sight existing shortly after the hurt, improves for a period of some weeks or months, and afterwards becomes worse than it has ever been before. These variations in its course can be satisfactorily accounted for. The weakness of sight immediately following the injury, is due to inflammatory infiltration of the retina, especially its outer layers, and to exudation into the interior structures of the eye in general, perhaps also to bruising of the retina. All these conditions may pass away without definite impairment of the retinal functions. But they may, on the other hand, cause lasting changes in the delicate elements destined for the perception and transmission of visual impressions either by a thickening and degenerative process, or by atrophy. Both have been observed in that part of the retina which lies over and near the choroidal fissure, and in consequence thereof it loses its functional power more or less. The remarkable fact mentioned above, that after a period of improvement the sight gets worse again, and remains bad, is due to the *contraction of the cicatrized tissue formed in the choroidal gap*: the retina may become fastened to it, drawn backward and united to the sclerotic. Then the former regular distribution of the retinal elements, resembling a mosaic work, becomes disturbed; and these elements, arranged previously in the regular retinal meridians, are displaced so as to produce secondary curves in the latter. When they thereby do not lose their functional powers, objects appear crooked and distorted—*metamorphopsia*; but when the sensory elements connected with the scar are destroyed, a corresponding *defect in the visual field* is observed—*scotoma*. Another consequence of this contraction of the cicatrized tissue has been pointed out by SÆMISCH, *i. e.*, *detachment of the retina*. The retina then becomes firmly attached to the choroidal scars which, when contracting, may stretch the retina so much as to separate it from its union with the choroid.

The occurrence of a defect in the visual field by detachment of the retina or destruction of the sensory elements lying over the choroidal fissure is easily understood; but the preservation of perfect sight, and the non-occurrence of metamorphopsia, or deficiencies in the visual field when the ophthalmoscope discovers extensive choroidal rents, is a surprising fact. The pathology of the choroid, however, furnishes analogous conditions not infrequently. We see, after exudative choroiditis, even if the retina has been involved in the inflammation, that extensive white patches—choroidal atrophies—remain on the background of the eye, and nevertheless the acuteness of vision may be perfect. Further, in examining the size of MARIOTTE'S blind spot in the visual field of eyes affected with posterior staphyloma, we often find the extent of the dark spot in the field of vision less than it would be if the retina lying over the white figure

surrounding the optic disc were insensible to light. From these observations we may infer that the sensory elements of the retina may retain their faculty of perception, even though their usual base, the inner chorioidal layer, may have been destroyed. This assertion is further confirmed by the numerous observations that detached portions of the retina become sensitive again, when the retina recovers its normal position.

Dr. KNAPP illustrates his very valuable paper by a table of seventeen cases collated from various sources, and reports eight additional cases from his own practice.

7. *A Method of Dressing Eyes after Cataract Extraction, and other Ophthalmic Operations requiring Rest by Exclusion of Light.* By C. R. AGNEW, M.D., of New York.

[*Transactions Am. Ophthalmological Soc'y, Sixth Ann. Meeting, 1869.*]

The dressing consists, first, of two strips of isinglass plaster, about two and one-half inches long by a quarter of an inch wide, applied over the closed eyelids to keep them shut; next of a strip of soft, thin linen or cotton cloth, in the form of a parallelogram, large enough to extend laterally beyond the temporal edges of the orbital rims, upwards to clear the superciliary ridges, and downwards to a horizontal line drawn through the cheek-bones. Next a piece of black silk sufficiently large to overlap all but the upper edge of the cloth; next of some strips of isinglass plaster long enough and broad enough to attach themselves partly to the silk and partly to the contiguous skin, so as to hold the dressing in place. If the silk be so thin as to be translucent it should be made of two folds, otherwise one fold will suffice. A notch may be made in the center of the lower edge of cloth and silk so as to permit a close coaptation between the dressings and the skin in the angles formed by the intersection of the wings of the nostril with the surface of the cheek.

It is claimed that this dressing, when carefully applied, is sufficiently permeable to permit the proper escape of heat and moisture, and is yet so opaque as to shut out light, and therefore to produce natural rest for the eyes, while it is free from weight, and incapable of making any other pressure than that dependent on the coaptation of the eyelids and eyeball.

It is a clinical desideratum to be able to treat a case of ophthalmic surgery in a well lighted room without admitting light to the wounded organ. Such a dressing makes it easy to surround old and feeble subjects with an atmosphere chemically fitted for respiration, and thus to quicken the vital forces and lessen the dangers which spring from delayed or perverted reparative processes. It favors regular and easy care of the patient, and the performance of such offices as may pertain to his comfort or safety. It permits, at proper times, such entertainments as may tend to give pleasant occupation to the mind and banish the apprehension and dread which always exist, to a greater or less degree, in the case of those who are served in the dark by groping or stumbling attendants.

It is claimed, moreover, that this dressing does away with the dangers arising from the use of pressure bandages, dangers much greater than some are now prepared to admit—but dangers proved to exist by the great variety of the bandages, and the attempt made to give formulæ for the measurement of the pressure made by a given bandage.

We believe there would be fewer eyes lost by suppuration, after extraction, for example, if pressure bandages were entirely discarded from the surgical armamentarium, and eyes allowed to be shut and at rest unopened for a few days after severe operations.

It remains to be proved that pressure aids the union of wounds in the eyeball. We believe that the natural dressing of a wounded eye is the closed eyelids, and the only other local condition needed is the rest afforded by the exclusion of light by closure of eyes and repose of the facial muscles. Pressure enough from bandages to secure such desiderata is scarcely attainable, or, if obtained, becomes so soon intolerable as to provoke the surgeon to a speedy readjustment of his bandage—a readjustment often made necessary for the relief of symptoms which are found, on a candid examination, to have originated in the effects produced by accidental displacement of the bandage which, perhaps, twelve hours previously had been fastidiously applied.

This method may also be used after the extraction of blood by HEURTELOUP's leech, giving the local rest afforded by darkness, and, when desirable, associated with gentle bodily exercise to keep up the play of the circulation, and thus help to discuss a choroidal or other ophthalmic congestion.

It is our common practice to apply this dressing immediately after an extraction, and not to remove it until the expiration of five days, when it can be easily detached by washing, and reapplied, if need be. A very little experience will enable a surgeon to post himself as to the progress of a case after extraction by the subjective symptoms, with the additional testimony obtained by gently passing the finger over the silk dressings to determine the question as to whether swelling of the lids exists.

[JOHN GREEN, M.D.]

Editorial.

METEOROLOGICAL OBSERVATIONS AT ST. LOUIS, MO.

By A. WISLIZENUS, M.D.

The following observations of daily temperature in St. Louis are made with a MAXIMUM and MINIMUM thermometer (of Green, N. Y.). The daily minimum occurs generally in the night, the maximum about 3 P. M. The monthly mean of the daily minima and maxima, added and divided by 2, gives a quite reliable mean of the monthly temperature.

THERMOMETER FAHRENHEIT, 1869.

NOVEMBER.			DECEMBER.		
Day of Month.	Minimum.	Maximum.	Day of Month.	Minimum.	Maximum.
1	37.0	69.0	1	21.0	28.5
2	43.0	68.0	2	26.0	38.5
3	53.0	57.5	3	22.0	38.0
4	55.0	76.5	4	35.0	45.5
5	41.5	60.0	5	30.5	36.5
6	33.0	51.5	6	30.0	34.5
7	28.5	45.0	7	26.5	30.0
8	31.0	35.5	8	26.0	31.5
9	34.5	42.5	9	30.0	40.0
10	31.0	37.5	10	38.5	47.5
11	26.5	31.5	11	43.5	47.0
12	30.0	35.5	12	37.5	41.5
13	30.5	33.0	13	36.5	39.0
14	26.5	36.5	14	31.5	36.5
15	29.0	40.5	15	31.5	33.0
16	34.5	39.0	16	29.0	31.0
17	29.0	35.0	17	29.0	31.0
18	26.0	43.0	18	19.5	26.0
19	29.0	40.5	19	23.5	27.0
20	21.5	34.5	20	9.5	22.0
21	26.0	32.0	21	16.0	29.0
22	30.0	47.0	22	20.0	26.0
23	32.0	42.5	23	12.0	27.0
24	28.0	37.0	24	19.5	29.5
25	32.0	50.5	25	28.5	40.5
26	42.5	48.5	26	25.0	43.5
27	35.0	40.5	27	30.5	46.0
28	32.5	43.0	28	30.0	44.0
29	42.0	61.5	29	29.5	52.5
30	30.0	44.0	30	30.0	48.0
31			31	29.0	47.0
Means....	33.3	45.3	Means....	27.3	37.0
Monthly Mean...	39.3		Monthly Mean...	32.1	

REPORT OF ATMOSPHERIC ELECTRICITY, TEMPERATURE, AND HUMIDITY.

BASED ON DAILY OBSERVATIONS at 6, 9, 12, 3, 6, AND 9 O'CLOCK, FROM
MORNING TILL NIGHT, AT ST. LOUIS, MO.

1.—Monthly Mean of Positive Atmospheric Electricity.

Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.	Mean in 9 years.	No. of Thunder Storms.	Prevailing Winds.
1869.	Nov.	4.7	4.9	4.3	5.0	5.1	4.0	4.7	8.3	1	nw. and se.
1869.	Dec.	2.2	3.0	1.7	1.0	1.4	0.4	1.6	8.3	0	nw. and se.

2.—Monthly Mean of Temperature, Fahrenheit.

Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month
1869.	Nov.	36.1	31.4	43.8	44.1	42.8	40.0	40.9
1869.	Dec.	30.8	54.2	36.0	37.6	34.2	33.0	33.8

3.—Monthly Mean of Relative Humidity.

Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month
1869.	Nov.	89.0	79.4	72.0	70.9	79.6	84.4	79.2
1869.	Dec.	86.9	84.2	74.6	73.6	80.3	85.0	81.8

The temperature of November was 39.3 F. The average is 43.4. That of December 32.1: its average 33.8. Both months were therefore colder than usual, but especially November. In November an unusual quantity of rain, with some snow, fell to the amount of 7.48—more than double its average, which is 3.16. The quantity of rain and snow in December corresponded exactly with its average—3.16. In both months north-west winds prevailed, and the sky was generally overclouded. In December, especially, we enjoyed only about one week of clear sky; all the rest of it was cloudy, dark, gloomy and moist. On account of the high saturation of the atmosphere with moisture, electricity, too, had almost disappeared, and its average quantity in December was less than I have ever observed before in that month. In fair weather the average electricity of December reaches sometimes 14 degrees; this year it was but 1.6. That constant moisture in the atmosphere conducts electricity to the ground, and prevents any accumulation of it in higher regions, is very obvious; but in the present case I am inclined to attribute its unusual absence also to the unusual absence of the direct rays of the sun—of that mysterious burning star from which all our physical forces on earth are derived, and the abating influence of which would throw back our globe into chaos.

**YEARLY REPORT OF ATMOSPHERIC ELECTRICITY,
TEMPERATURE, AND HUMIDITY, FROM OB-
SERVATIONS MADE AT ST. LOUIS, MO.**

By A. WISLIZENUS, M.D.

- 1.—*Monthly Mean of Positive Atmospheric Electricity in 1861–1869, based on daily observations at 6, 9, 12, 3, 6, and 9 o'clock, from morning till night.*

ATMOSPHERIC ELECTRICITY.

YEAR.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861.....	16.5	12.1	9.8	8.8	7.8	4.0	3.7	3.4	3.0	7.1	10.0	14.3	8.4
1862.....	12.1	6.0	9.4	10.6	7.5	3.0	2.2	2.3	3.0	7.7	12.6	13.9	8.4
1863.....	16.9	15.9	13.6	8.8	4.7	2.0	2.8	4.4	4.8	12.5	12.1	11.5	9.2
1864.....	15.8	11.3	11.0	8.5	5.1	4.0	2.3	0.9	1.8	5.4	6.6	9.0	6.8
1865.....	12.2	9.5	5.9	3.3	2.4	3.4	2.6	5.9	1.2	5.3	10.1	6.4	5.7
1866.....	5.9	2.1	5.7	2.1	3.3	2.1	2.4	5.1	3.2	3.0	10.2	7.0	5.2
1867.....	9.2	8.2	6.5	3.3	2.9	2.8	2.7	5.2	3.5	3.0	4.2	4.2	4.6
1868.....	4.1	5.0	2.5	1.7	1.1	0.4	0.5	0.4	1.4	2.6	4.3	6.3	2.5
1869.....	2.7	2.5	4.6	1.6	0.7	0.9	1.1	0.3	1.3	7.8	4.7	1.6	3.0
Mean.....	11.3	9.8	7.7	5.4	3.9	2.5	2.3	3.1	2.6	6.5	8.3	8.3	6.0

- 2.—*Monthly Mean of Temperature and Relative Humidity in 1861–1869 based upon daily observations contemporaneous with those of Atmospheric Electricity.*

TEMPERATURE.

YEAR.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861.....	32.2	40.4	44.8	53.1	64.1	76.9	77.5	78.6	69.1	57.9	46.0	39.7	57.1
1862.....	28.9	30.2	43.2	55.0	69.7	75.1	81.2	80.7	72.1	57.3	42.6	41.3	56.4
1863.....	36.8	35.7	43.6	57.4	65.5	71.9	77.2	77.5	69.2	48.0	43.7	35.9	55.2
1864.....	29.2	38.3	40.7	51.4	69.4	78.9	83.5	78.2	72.9	53.1	44.9	30.4	56.0
1865.....	28.1	38.4	46.7	56.3	68.8	80.7	77.7	78.1	77.8	58.8	48.0	30.8	57.5
1866.....	32.2	33.4	42.2	61.2	66.3	75.3	82.2	76.8	64.0	59.3	46.6	33.3	56.0
1867.....	45.4	39.1	34.1	56.7	61.1	76.9	81.3	81.4	68.5	59.6	49.2	36.1	55.8
1868.....	26.0	35.8	51.6	53.6	68.4	76.9	88.0	77.2	68.7	56.5	44.9	29.9	56.2
1869.....	39.4	36.9	39.9	50.3	66.6	74.7	80.7	82.1	68.2	47.9	40.9	33.8	55.6
Mean.....	30.2	36.5	43.0	56.3	66.7	76.4	81.0	79.0	69.7	55.3	45.2	34.6	56.2

RELATIVE HUMIDITY.

YEAR.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861.....	72.2	63.3	64.5	61.5	66.3	70.8	66.3	64.3	77.3	76.6	69.0	74.3	69.5
1862.....	85.3	73.9	70.8	67.0	57.3	67.0	66.8	64.3	74.2	67.2	60.5	74.6	69.8
1863.....	79.2	81.7	68.1	57.2	59.4	67.7	68.6	70.7	68.2	74.4	67.4	79.5	70.2
1864.....	75.6	62.7	70.0	69.8	56.4	61.5	62.8	69.0	64.1	67.9	74.2	78.8	67.4
1865.....	74.6	72.0	66.1	66.8	62.1	67.9	77.4	71.7	76.8	74.1	62.3	78.8	70.9
1866.....	75.1	70.6	69.1	60.6	59.7	66.0	68.2	66.7	81.8	71.7	72.5	76.8	69.9
1867.....	76.2	73.5	75.7	59.1	61.4	64.8	63.9	60.0	63.7	67.9	64.9	77.6	67.4
1868.....	72.4	68.6	67.7	61.9	64.7	60.7	61.7	61.8	72.9	69.7	68.1	75.1	67.1
1869.....	76.1	76.1	74.7	61.2	66.1	69.3	70.3	74.2	75.4	73.2	79.2	81.8	73.1
Mean.....	76.3	71.1	69.0	62.8	60.9	60.8	67.3	67.6	72.3	71.4	69.7	76.4	69.5

3.—*Yearly Mean of Positive Electricity, of Temperature and of Relative Humidity of the atmosphere at the hours of 6, 9, 12, 3, 6 and 9, from morning till night, based upon daily observations at those hours in 1861—1869.*

ELECTRICITY.

Year.	6. A. M.	9 A. M.	12 M.	3. P. M.	6. P. M.	9 P. M.
1861	8.5	9.9	9.0	7.7	8.5	6.8
1862	8.9	10.0	9.1	7.3	8.1	6.8
1863	10.5	10.6	10.0	7.5	9.1	7.4
1864	7.9	8.8	7.4	5.4	5.9	5.5
1865	6.4	7.1	6.0	5.3	5.4	3.8
1866	5.5	6.2	5.2	4.5	5.2	4.4
1867	5.2	5.6	4.9	4.2	4.3	3.8
1868	2.7	3.0	2.7	2.2	2.5	1.9
1869	3.3	3.5	2.8	2.4	3.2	2.7
Mean :	6.5	7.2	6.3	3.2	5.8	4.8

TEMPERATURE.

1861	48.9	54.9	61.6	63.6	59.3	54.3
1862	48.9	55.0	60.9	62.3	58.0	53.6
1863	47.5	53.6	59.7	61.0	57.2	52.2
1864	48.0	54.1	60.5	62.2	58.1	53.0
1865	50.4	55.8	61.8	63.3	59.3	54.7
1866	48.4	54.6	60.3	61.9	57.9	53.4
1867	48.4	54.2	60.0	61.4	57.4	53.3
1868	49.2	54.8	60.4	62.1	57.4	53.5
1869	48.4	54.2	59.8	61.4	57.2	52.7
Mean :	48.7	54.6	60.6	62.1	58.0	53.7

RELATIVE HUMIDITY.

1861	86.4	71.3	60.3	57.2	65.1	77.3
1862	85.3	70.6	60.0	57.5	67.6	78.0
1863	86.8	71.4	60.2	58.0	66.7	77.9
1864	83.9	69.3	57.7	55.0	64.0	74.8
1865	84.7	71.7	61.3	59.0	68.3	78.9
1866	84.9	70.1	60.6	58.6	67.4	78.8
1867	83.1	68.4	57.9	55.0	64.6	75.4
1868	80.5	68.1	57.9	55.9	65.0	75.4
1869	86.9	73.8	64.6	62.4	71.2	80.0
Mean :	84.7	70.5	60.0	57.6	66.6	77.4

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ON FRACTURES.*

By JOHN T. HODGEN, M.D., Professor of Anatomy, St. Louis Medical College.

II.

SHOCK.—I cannot better introduce the present article than by making some *verbatim* extracts from the admirable work of Prof. J. C. DALTON (on Physiology). He says :

"The irritability of the nerve continues after death. The knowledge of this fact follows from what has just been said with regard to experiments on frogs' legs, prepared as above. The irritability of the nerve, like that of the muscle, depends directly upon its *anatomical structure and constitution* ; and so long as these remain unimpaired, the nerve will retain its vital properties, though respiration and circulation may have ceased. For the same reason, also, as that given above with regard to the muscles, nervous irritability lasts much longer after death in the cold-blooded than in the warm-blooded animals. Various artificial irritants may be employed to call it into activity. Pinching or pricking

* Continued from page 22.

the exposed nerve with steel instruments, the application of caustic liquids, and the passage of galvanic discharges, all have this effect."— (p. 375.)

"Nervous irritability, like that of the muscles, is exhausted by repeated excitement. If a frog's leg be prepared as above, with the sciatic nerve attached, and allowed to remain at rest in a damp and cool place, where its tissue will not become altered by desiccation, the nerve will remain irritable for many hours; but if it be excited soon after its separation from the body, by repeated galvanic shocks, it soon begins to act with diminished energy, and becomes gradually less and less irritable, until it at last ceases to exhibit any further excitability. If it be now allowed to remain for a time at rest, its irritability will be partially restored, and muscular contraction will again ensue on the application of a stimulus to the nerve. Exhausted a second time, and a second time allowed to repose, it will again recover itself; and this may even be repeated several times in succession. At each repetition, however, the recovery of nervous irritability is less complete, until it finally disappears altogether, and can no longer be recalled.

Various accidental circumstances tend to diminish or destroy nervous irritability. The action of the *woorara* poison, for example, destroys at once the irritability of the nerves, so that in animals killed by this substance no muscular contraction takes place on irritating the nervous trunk. Severe and sudden mechanical injuries often have the same effect, as where death is produced by violent and extensive crushing or laceration of the body or limbs. Such an injury produces a general disturbance, or *shock*, as it is called, which affects the entire nervous system, and destroys or suspends its irritability. The effects of such a nervous shock may frequently be seen in the human subject after railroad accidents, where the patient, though very extensively injured, may remain for some hours *without feeling the pain* of his wounds. It is only after reaction has taken place, and the activity of the nerves has been restored, that the patient *begins to be sensible of pain*. It will often be found, on preparing the frog's leg for experiment as above, that immediately after the limb has been separated from the body, and the integument removed, the nerve is *destitute of irritability. Its vitality has been suspended by the violence inflicted in the preparatory operation*. In a few moments, however, if kept under favorable conditions, it recovers from the shock, and regains *its natural irritability*." (p. 376).

"M. BERNARD has demonstrated, by a series of extremely ingenious experiments on the action of poisonous substances—first, that the irritability of the muscles may be destroyed, while that of the nerves remains unaltered; and, second, that the motor and sensitive nervous filaments may be paralyzed independently of each other." (p. 395).

For instance: Sulphocyanide of potassium destroys directly the irritability of the muscle without affecting the motor or sensory nerves. Woorara poison destroys the

irritability of the motor nerves, without affecting the muscles or the sensitive nerves. Strychnine exhausts the irritability of the sensitive nerves, without affecting either the motor nerves or the muscles.

When the excitability of one or the other is destroyed, either by these poisons, by a long-continued and excessive use of any of the normal stimuli, by direct mechanical, chemical, or electrical stimulation,—the animal or the man, as the case may be, dies of shock so great that the excitability of the vital organs is COMPLETELY lost.

A case is presented in which the prominent observable symptoms are those of shock, viz. : a cold, shrivelled, blue skin, bathed in perspiration ; a sighing, frequent, feeble respiration ; a quick, frequent, irregular, intermittent, small pulse ; the patient is inclined to stupor, though not sleeping, and though he can be aroused, is not fully conscious of his condition, and does not appear to be able to command his intellectual faculties ; is restless, but not violently tossing. Here, then, is a category of symptoms that are *easily* recognizable, and not easily forgotten. These you will retain better, however, in connection with the conditions which give rise to them, if I trace the connection between one and the other.

What is shock, its causes and pathological condition? Shock I conceive to be that condition of the body in which all the sensibilities and capabilities of the structures of the body are suddenly so impaired as to make life barely possible. To illustrate this point, man, as indeed do all animals, lives through a capability of being stimulated by external conditions or influences, and that capability of responding to these external impressions implies a perfection of organization.

Let me bring this point still more plainly before you, thus : the sensitive plate of the Daguerrean artist is rendered so (sensitive) by a certain coating, rendering it capable of undergoing certain changes when light is admitted to it ; but when once light is admitted, once the change is effected by

chemical action, it is no longer capable of responding in the same way to the same stimulus. To make it again capable of going through the same changes a second time, the old materials must be removed, and a new coating of chemicals applied. Now, it is just so with every fibre of man's organization. If once a part has been brought into action, it is incapable of a second action until the parts altered by that act are removed, and others of proper kind are made to replace them. Thus, your eye is directed, for a moment, to the midday sun. Its brilliancy makes an overpowering impression, and several moments of rest are required to repair the damage done to the organism. In a little time the worn-out parts are removed, and new ones replace them, and the organism is again perfect and you again see. You demand of your biceps to contract; it responds to the demand, and a rest is necessary to repair the waste, and if all the fibres contracted in their entire length, a second act could not be excited immediately. Thus it is with the heart; though it contracts eighty times per minute, it rests three times as long as it acts. Now, exhaust the irritability of a part by repeated stimulation or repeated action, and it is so wasted that an appreciable time is required for its repair, and the part is for the time paralyzed. Pass a current of electricity through a part, and excite its muscles to act and act again, until they cannot act; let it rest; the capability of action is restored; and this restored power is through restored structure—restored through the nutritive act, which is dependent upon the nutritive materials.

Now, this is shock—a condition in which capability of action is nearly or entirely destroyed through over-stimulation and consequent over-action.

The skin is cold because the vital processes by which the temperature is maintained are going on slowly; shriveled because the blood is not bounding with energy through the peripheral parts, aided by local nutritive changes; blue because the little blood there is not perfectly arterialized; and covered with perspiration because a tardy flow and relaxed

tissue favor exudation from the vessels. The breathing is sighing because the respiratory muscles are so exhausted that they cannot effect regular, full inspirations; frequent, because they are incomplete and feeble—because the normal stimulus cannot excite to perfect action an impaired organ. The pulse is quick and frequent because of the incapacity of full, free action of heart and arteries and over-distended central vessels; irregular and intermittent because, notwithstanding the urgent stimulus of distension, the heart is not repaired with sufficient rapidity to respond to the loudest calls that can be made upon it; and there is stupor because the brain, like all else in the organism, is so changed that it cannot act fully and freely.

Altered structure gives rise to altered function. *Impaired structure gives rise to impaired function.*

What can and what has, in this case, given rise to this serious disturbance of vital functions? A car wheel, with a weight of forty tons, has passed over the leg, crushing it from the ankle to the knee. Skin, fat, muscles, nerve, vessels and bone, all are one mass of disorganized matter, and one mighty stimulus to all the tissues has affected every part. All have, as if by a fierce flash of electric fluid, been disarranged, so that the organism is but capable of maintaining an imperfect vitality. You may pinch the patient; he does not suffer. Shout in his ear; he is little disturbed. Pass before his eyes the grandest panorama of nature, and it passes unheeded. A mother, mad with excitement, may cover the pallid face of her darling boy with kisses, mingled with tears, and pour into the dulled organ of hearing the most earnest appeal for one, just one word—a last word of recognition; but when he is sufficiently aroused to speak, he perhaps heartlessly thrusts through her ears, into her very soul, an "Oh, let me rest."

The first impulse of every generous heart is to try to relieve the poor unfortunate; and twenty-five years ago, as the physician hastily forced his way to a patient thus injured, he instinctively thrust his hand into his vest pocket

to find the ever-thirsty lancet; and to-day, as the Doctor hurries to such a patient, he thinks of brandy and carbonate of ammonia, and his thought of stimulants is as fatal to his patient as the thrust of his grandfather's lancet.

I am aware that the opposition which I propose to make to stimulants in shock will not meet the ready acceptance of the profession; yet I believe it is only necessary to observe a few patients laboring under shock, when the stimulant is omitted, to satisfy any unprejudiced mind that NOTHING,—that non-interference, is better than stimulants.

Now, if shock be the condition I represent, if shock be diminished irritability, and diminished irritability be dependent on deranged organization, then repair is that which is needed. Stimulants as such can only, if they do anything, exhaust the little capability of action that remains.

Who has not seen brandy administered, ounce after ounce. Carbonate of ammonia, scruple after scruple, most unscrupulously, and no reaction follow, or if it did follow, who has not seen a second exhaustion, more terrible than the first, precede a rapid death.

What do physiologists do with their frog's legs when they have lost their irritability from over-stimulation? Do they stimulate them again? No, they leave them in a moist atmosphere, the tissues bathed in the juices that normally impregnate the tissues, and very soon the irritability is restored. So, too, I would treat a patient laboring under shock. I would not hurry him into a wagon and rattle him over the rough streets to the hospital, or to his home, but take every means to give him the most perfect rest, wrap the body in warm blankets, exclude the light, shut out the noise, and allow no motion. Thus wait until the fully elaborated nutritive juices in the body, and in which the benumbed tissues are bathed, have furnished those tissues with the materials for the repair of the waste, and we shall find a sufficient and proper reaction coming on through the repair that must precede the reaction. But I may be asked, can you not imagine a case in which stimulation would save a life that

must be lost without it? No, I cannot, for the following reason: If the shock is so severe that the patient does not respond at all to the normal stimuli, he is dead; if he does respond to the normal stimuli, his tissues need not have their irritability still farther exhausted by stimulation. The very best material for the repair of the tissues that can possibly be placed within the reach of the tissues, is the liquor sanguinis, in which they are already bathed, and this material will serve present purposes just as supper will serve the organism until breakfast; it will meet the urgent demand of the hour, but *we* must meet the demand of the morrow with beef-tea, eggs, soups, etc.

The sixteen pounds of blood circulating in the blood vessels of the man, is not half the nutritive material that permeates the organism. The sixteen pounds of blood only represent the amount that may be spared from the capital on hand. It is the floating capital—a sort of means of traffic—while that which permeates the tissues is that which promptly responds to the first call of the hungry tissues for nourishment.

Then I would keep the patient quiet, exclude light and sound, and after a few hours, if he called for it, I would give him essence of beef, milk, or any other easily assimilated food, but no stimulant, as such.

*ON THE RISE AND FALL IN POPULAR FAVOR OF SOME
OF THE ARTICLES OF THE MATERIA MEDICA.*

By EDWARD MONTGOMERY, M.D., St. Louis.

It is both curious and interesting to review the rise and fall, the periods of notoriety and of oblivion, of popularity and neglect, of the different articles of the *Materia Medica*. Some of them, meteor-like, shone with dazzling brightness for a short time, and passed away, never to return. Others, like the comets, for a while illumed the therapeutic

sky, disappeared from view, and again returned with renewed splendor; whilst others, like the fixed stars, remained to sight and memory, constantly employed, and steadily maintaining their reputation as sanative remedies amidst all the conflicts of systems, the theories of empirics and the dogmas of schools. We are astonished and amused at some of the celebrated remedies of the ancients—astonished at the wonderful powers attributed to them, and amused at the very slender basis on which their pretentious claims were supported; for it is a curious fact that nearly all the most renowned remedies of antiquity are at this day known to possess very little power or efficacy of any description whatever. This remark is particularly applicable to the most ancient of all remedies of which we have any account, namely, the hyssop, the anise and cummin, the fig and pomegranate, verbena, melissa, galbanum, myrrh, frankincense, balm of Gilead, amber, cinnamon, calamus, etc., etc.

As the human family in primitive times had to depend for the most part, on nuts, berries, and other fruits and vegetables for food, so it is most likely that their list of curatives were derived from the same source; indeed, it is believed that medicinal agents obtained from the mineral kingdom did not come into use until the time of RHAZES, late in the ninth century, and were very little used until brought into notoriety by PARACELSUS, BASEL, VALENTINE, and others, at a much later period.

But there are a few of the ancient remedies still held in repute at the present day. The application of the fruit of the fig tree to a boil is now as popular and as efficient as it was in the days of the prophet Isaiah and King Hezekiah. The fruit of the pomegranate is still esteemed as a healthy refrigerant and anti-scorbutic, and its bark a good anthelmintic, and a warm infusion of the garden hyssop, balm, anise, or cummin, is still a popular diaphoretic drink, although no experienced physician attributes any very active medicinal virtues to these simple aromatics. The very

names of many antique remedies indicate to us the great virtues they were supposed to possess, and the high estimation in which they were held. The verbena or vervain was called the *herba sacra*, and its curative properties were supposed to be so powerful that in many cases a little of it tied around the neck or attached to some part of the body was sufficient to prevent or even eradicate disease! And yet we know that this simple herb has no more medicinal virtues, and less sensible properties, than common thyme or lavender. The gums and balsams so much esteemed in remote ages as valuable medicaments, are now but moderately relied on—indeed, many of them never used internally. Even the renowned balm of Gilead is now classed medicinally with our common Canadian balsam. The myrrh and galbanum, so often mentioned in Scripture, are still often administered by physicians, but mostly in conjunction with other more efficient agents. Assafoetida is said to derive its name from a Hebrew word signifying “to heal,” and although this strong-scented gum (it should be called *gumma graveolens*) is still very popular, and frequently prescribed, yet modern physicians do not believe it to possess any very exalted virtues. Assafoetida is supposed by some to be the *asadulcis* or *laser* of the ancients; but be that as it may, there is no doubt but it was always held in high estimation, both as a prophylactic and curative agent. The *ruta graveolens*, or common garden rue, derives its name from a Greek word signifying “to preserve health,” and was very highly esteemed in ancient therapeutics; witness this line from the school of Salernum: “*Salvia cum ruta faciunt tibi pocula tuta.*” There is no doubt but this domestic plant possesses many valuable medicinal properties, and but for its intensely nauseous and bitter taste, and disagreeable smell, it would most likely continue to be a most popular medicament. The *salvia*, or sage, is another ancient medicinal herb, which was also highly esteemed and constantly used, although its curative powers are of a weaker order than those of the

roe, but the doctors of Salernum must have thought differently, for, in addition to the line above quoted, we find the following: "*Cur moriatur homo cui salvia crescet in horto?*" The artemisia family of plants were named in honor of Diana, because supposed to be peculiarly useful in the diseases of females, and some of them, the *a. absinthium* and the *a. vulgaris*, are still frequently prescribed for uterine diseases. The artemisia vulgaris, or mugwort, was also called mater herbarum, from its multiplicity of virtues, and especially for its reputed cures in the affections peculiar to women. Many European physicians still administer it in cases of dysmenorrhœa, hysteria, flour albus, uterine debility, etc. The artemisia abrotanum was prescribed by HIPPOCRATES, so that this common garden plant, commonly called "Jew's beard," "old man's beard," and "southern wood," is a very ancient medicinal herb. The *a. absinthium* is the variety undoubtedly possessed of most curative virtues, being a most excellent stomachic and tonic, and particularly efficacious in cases of worms after a cathartic dose of calomel and rhubarb. The tanacetum is another herb of the same medicinal properties as the artemisia. The ancient name of the tansy was athanasia—"against death," "immortal"—from its supposed curative and antiseptic powers. It is still used as a bitter stomachic, vermifuge and emmenagogue, and is deserving of more frequent use by the medical faculty, instead of being, as at present, left to the hap-hazard prescriptions of old women and charlatans. Another herb very similar to the last in its sensible qualities is the achillea millefolium, or common yarrow. This is a very ancient medical plant. It is said that its virtues were discovered by Achilles, whilst he was studying botany under the renowned centaur, Chiron; hence the name Achillea. This is a good bitter tonic, but however popular about the time of the siege of Troy, it is very little used now, either in scientific or domestic practice. Matricaria, parthenia, feverfew, febrifuge, motherwort, the herb of so many names, was also very early used. It

is embraced in the list of medicinal plants described by DIOSCORIDES, and was long highly esteemed in fevers and diseases peculiar to women, but is now almost forgotten. The hypericum, or St. John's wort, was so called from its reputed powers over evil spirits, and was long popular in cases of melancholia, hypochondria, hysteria, insanity, etc., but is now entirely abandoned. The herb imperatoria, or masterwort, was so highly prized as to be designated *divinum remedium*, and recommended for all diseases. Now it is barely known as a mild, simple, aromatic herb, far inferior to some others of the same class. Laserpitium, chironium, Hercules, all-heal, woundwort, is another very ancient remedy which was considered a perfect panacea. Indeed, its being named after the most ancient renowned botanist, Chiron, and after the fabled hero, Hercules, is sufficient indication of the honored position and eminent estimation in which it was held. Gratiola, herb of grace, is another plant which was for ages universally recommended, but now neglected. Angelica was reputed to be possessed of many and great virtues, and was an ingredient in some of the theriacæ and other compounds of ancient polypharmacy. The viscum album, or mistletoe, was a very ancient and sacred remedy. It was held in very high estimation both as a prophylactic and curative, by the ancient Druids, and is mentioned by PLINY and VIRGIL. Although its very ancient reputation was about to be renewed by several respectable practitioners some two hundred years ago, it has now fallen into disuse. The disorders of the nervous system were the diseases in which it was chiefly used, and some apparently well authenticated cases of epilepsy and chorea were said to have been cured by this parasitic plant.

Centaureum Benedicti (blessed thistle) is also a very old remedy, mentioned by PLINY and VIRGIL, and named, like many other plants of reputed curative virtues, after the ancient naturalist, Chiron, the centaur. It was long in good repute as a vulnerary, tonic and stomachic. But this is not the only instance where names were given very unde-

servedly, or at least inappropriately ; for instance, the herb herniaria was so named because it was said to cure rupture, when in fact it was perfectly useless in that, and of no great efficacy in any other disease. The same may be said of sanicula, or sanicle, so named from its supposed healing virtues. The plant jecoraria, hepatica or liverwort, was at one time highly extolled in diseases of the liver, lungs, etc. It was called "the noble vulnerary," and considered almost a specific in hæmoptysis, but is now dethroned from its pretentious position. The vitex agnus castus (tree of chastity) was so named from its supposed antaphrodisiac virtues, but is now known to be destitute of any such qualities ; indeed, it is asserted that its use will be followed by the directly opposite effects. Palus sanctus and lignum benedictum were names applied to guaiacum, from its supposed beneficent properties in purifying and renewing the blood, and imparting health, vigor and elasticity to the body. This was one of the ingredients of the celebrated "Lisbon Diet Drink," which contained sarsaparilla, sassafras, guaiacum, mezereon, liquorice and pumice stone. The remedy of the celebrated Dr. HOFFMAN, bearing the high-sounding title of "Balm of Life," was composed of nutmegs, cloves, lavender, and balsam of Peru—substances which cannot be presumed to exert any very great influence on the human body ; and yet this nostrum was exceedingly popular—one hundred and fifty years ago.

The medicinal compounds named bezoars, (from the Persian, signifying a destroyer of poisons), formerly so highly esteemed as alexipharmics, were chiefly composed of some of the salts of lime, ammonia and magnesia, biliary concretions, woody fibre, etc., and of course possessed very little medical virtue ; and yet some of these bezoars were sold for ten times their weight in gold. Three sent to Bonaparte by the King of Persia were analyzed by the celebrated chemist, BERTHOLLET, and found to consist of agglomerated wood fibre ! The bezoar found as a concretion in the viscera of some animals—in

the deer, the antelope, the porcupine, in some species of goats, etc.—might perhaps possess some curative powers, from the inspissated biliary compounds, different salts and vegetable products combined in the concretion, and therefore, and on account of their high price, many spurious imitations and substitutes were used in their stead. The once famous "Powder of Gascoine" was long a very popular substitute for the genuine article, but all have now deservedly fallen into disuse and utter neglect.

The anciently-renowned alexipharmic of Mithridates, King of Pontus, was composed of twenty leaves of garden rue, two figs, two walnuts, and a little salt, and was recommended to be taken every morning as a preventive against all infection, and an antidote against all poisons; and history informs us that the great warrior king, when driven to desperation by the unnatural, rebellious conduct of his son, tried to poison himself, but could not succeed, so thoroughly was his system impregnated and protected by his alexipharmic. Many nostrums named mithridates, after the royal pharmacist, have since been invented, lauded, largely patronized, and descended into the tomb of forgetfulness.

The theriaca Andromachi was a compound of sixty-one articles, finely powdered and mixed with treacle. The very names of most of the substances composing this grand specimen of ancient polypharmacy are now forgotten, and yet it was for many years a very popular and highly esteemed alexipharmic. This electuary being made by the famous physician of Crete, and dedicated to the Emperor Nero in Greek verse, no doubt had much to do with its subsequent popularity and renown.

The theriaca Edinensis was the same as the confectio opii. Theriaca Londinensis was composed of cummin seeds, bay leaves, snake-root, germander, cloves and honey. Barbaros' pills, composed of quicksilver, rhubarb, dragrideum (scammony), musk, amber and gum, were said to be the first mercurial preparation used with success. The Duke

of Portland's powder, once so celebrated for the cure of gout and rheumatism, was composed of rad. aristolochiæ rotundifoliæ, rad. gentianæ luteæ, summitates teucrû-chamædrys, erythra centaurea and ajuga chæmæpitys, none of which plants are now ever given in either disease, and the three last mentioned rarely used for any purpose. It is a singular fact that most of the vaunted remedies of the past began to lose their hold on the confidence and esteem of the people as soon as their composition and the nature of their ingredients became known. The once celebrated febrifuge "James' Powder" was so highly prized that the French king paid a large sum for the prescription, but now it is very seldom employed, the tartar emetic being found more manageable and far more reliable.

The aspidium filix mas, polypodium, or male fern, was long a secret remedy for worms, and was greatly prized, and very much used until the secret of the nostrum was purchased and made known; and yet this plant was known and extolled as a vermifuge by such ancient botanists as THEOPHRASTUS, PLINY and DIOSCORIDES. The male shield fern is a good specimen of a medicinal plant which has never lost its reputation from very early times to the present. It is still used by the regular physician, and is an efficient and reliable anthelmintic. In contrast to this, I may allude to the betonica officinalis, which ANTONIUS MUSA, physician to the Emperor Augustus, extolled as a sovereign remedy in no less than forty-seven diseases. He wrote a whole volume expatiating on its virtues; hence the Italian proverb: "He had more virtues than betony." I need scarcely say that this plant is now very rarely employed, although its well-marked and active qualities may yet bring it into favorable notice with the profession.

Thapsia silphion, the plant which produces the asadulcis or laser of the ancients, is now scarcely known, although it grows in three continents—Europe, Asia and Africa; and even before the founding of Rome representatives of the plant were to be found on Etruscan antiquities. This

silphion, laser cyrenaicum, or asadulcis, was a gum resin held in the very highest estimation by the ancients. It was reputed an antidote against all poisons, and a preventive of infectious diseases—in short, a medicine of unlimited powers and exalted virtues. The very great veneration in which it was held is evinced by the fact that representations of the plant from which it was obtained were to be seen on the coins, monuments and etruscan ornaments of the country where it was used. It sold at a higher price than any medicine which we now possess, and yet, with this convincing proof of its supposed value, and the other strong evidences of its popularity and usefulness, it has fallen into complete neglect.

Some articles of the *Materia Medica* owe their popularity to some fortuitous circumstance. Of this class we may mention the mandrake, or *atropa mandragora*. This plant was highly esteemed by the ancients, and prescribed by such illustrious fathers of physic as HIPPOCRATES, CELSUS and GALEN. It was reputed a great remedy in female complaints, and especially in cases of sterility and impotence. Even an amulet of mandrake worn about the person was supposed to promote good fortune, increase worldly riches, incite love, exalt pleasure, and insure success. Now, it is most likely that these reputed virtues originated in the imagination of our forefathers, believing great virtues to be naturally associated with the mandrakes gathered in the fields by Reuben, and presented to his mother, Leah. But it is now the common opinion that the mandrakes mentioned in the Book of Genesis were pleasant smelling fruits or flowers, which would not apply to the *atropa mandragora* of HIPPOCRATES and GALEN. This disconnecting the plant from the mandrakes coveted by Rachel has had the effect of obliterating its curative and prophylactic virtues.

The *cucumis colocynthis*, *coloquintida*, or bitter apple, is not indebted to the mention made of it in the sacred Scriptures for its present general use in medicine. These

wild gourds ignorantly put into the pottage by the prophet Elisha's servant are supposed to have been our colocynth, whose disgusting bitterness would deter even the most hungry and famine-stricken from indulging in such an unsavory dish. It is further stated that ELISHA put some meal into the pottage, and thereby made it palatable and wholesome. This feat of the prophet was certainly a miraculous one, for none of our greatest chemists could now, with all the lights of science, make a decoction of bitter apples into a pleasant and nourishing soup. There is no doubt but the wild gourds mentioned in the fourth chapter of the Second Book of Kings were the same as our bitter apple or colocynth, for travelers tell us that in crossing the sandy deserts of Syria, at the present day, these wild vines, with their bitter fruit, are found where scarcely any other green thing is to be seen, and that the dried pulp of the fruit is boiled in milk and drank by the natives as a purgative. The colocynth was well known to HIPPOCRATES, and used by him as a pessary to promote the free flow of the menses; but it does not appear to have been used extensively as an internal remedy until after the dark ages (14th century). Now it is one of our most useful and popular purgatives and emmenagogues, but is scarcely ever given alone, except in domestic practice, where, in numerous instances, it does a great amount of injury, when uncontrolled by correctives and adjuvants.

Hellebore is another medicinal plant which, although of great antiquity, still retains its reputation as a therapeutic agent of great efficiency and value. It is mentioned by PLINY, HORACE, VIRGIL, CÆLIUS AURELIANUS, DIOSCORIDES, etc., and was a favorite remedy with the very excellent physician, ARETÆUS. It was mostly prescribed by the ancients for mental diseases, and there is no doubt but that in many forms of insanity, and in some cerebral and nervous affections, it is a very excellent remedy. The helleborus niger was the main ingredient in the once celebrated Bacher's pills for the cure of dropsy; but as soon as the secret of

their composition was made public by the French government, the pills fell into unmerited neglect. The *helleborus orientalis* is the variety supposed to have been so popular with the ancients. But be that as it may, there is much similarity in their therapeutic actions, only that the latter is said to be more certain and energetic in its effects than the *helleborus niger*. The white hellebore, although placed by LINNÆUS in a different genus, is, like the black hellebore, a hydragogue cathartic, but much more acrid and virulent, and more applicable for external use. It was also well known to the ancients. The *veratrum viride*, or green hellebore, was probably not well known or used medicinally by the ancients, as its very decided and paramount action in creating intense nausea, and in lowering the force and frequency of the action of the heart and arteries, is not alluded to by them when speaking of hellebore, or, as they call it, *melampodium*.

Conium maculatum, or spotted hemlock, was well known at least five hundred years before the birth of Christ, and was used to execute the penalties of the law. It is doubtful whether it was employed as a curative agent until the time of GALEN, and perhaps it would not have been much to be regretted if it had never been introduced into the Pharmacopœia.

The *palma Christi* is a plant whose medical uses seem to have been unknown to the ancients. Indeed, some of its therapeutic virtues have but quite recently been made known. It is but a few years since Dr. ROUSE, of England, and Dr. GILFILLAN, of Brooklyn, New York, called the attention of physicians to its use as a galactagogue.

It is rather strange that most of the therapeutic agents now so very popular and in most constant use are of recent origin. The cinchona tree, from which is taken the Peruvian bark, was only brought into notice as a medicinal agent in the early part of the 17th century, and first prominently introduced into medical practice in France by Sir JOHN TALBOT in 1679. Dr. DUNCAN, author of the *Edin-*

burgh Dispensatory, first directed the attention of chemists to the feasibility of isolating and extracting the active principle of the bark as early as 1803, but it was not until 1820 that PELLETIER and CAVENTOU published their success in obtaining the alkaloids cinchonine and quinine. Iodine was not discovered until 1811, when M. COURTOIS, a chemical manufacturer of Paris, gave this valuable preparation to the world. The poor, illiterate kelp-burners of the coasts of Ireland and Scotland, in the year 1800, little thought of the valuable chemical contained in the large heaps of seaweed which strewed their rocky shores; neither did the unlettered denizens of Peru, Colombia and Bolivia ever dream that in the unsavory bark of their common forest trees was to be found that healer of the nations, that peerless remedy, quinine.

It is only about forty-three years since M. BALLARD, of Montpellier, discovered in the crystallizable residue of seawater (bittern) that now popular chemical called bromine, and in such a short space of time the compounds of both iodine and bromine have attained a most extraordinary eminence as remedial agents. Even that much-abused and much-employed medicine, calomel, was first mentioned by CROLLEUS, early in the seventeenth century; the first directions for its preparation were given by BEGUIN in 1608; yet, in less than a century after, it was so popular and held in such high estimation as a curative as to receive the honored title of *pulvis angelicus*. There is no article of the *Materia Medica* more praised and reviled than this, and its effects are certainly worthy of commendation or condemnation, according to the discrimination and judgment employed in its administration, its powers and energies for both good and evil being strongly marked and well developed.

To PARACELSUS is commonly attributed the honor of introducing antimony into medical practice, and it is said that VALENTINE prescribed it so freely to some of his brother monks that fatal results occurred: hence its

sacrilegious name, *anti-monos*. In 1609 M. PACHNIER, a Paris physician, was expelled from the faculty for prescribing it; but in 1666 the wine of antimony was authorized to be used, by an edict of the French Parliament. Any one reading the somewhat celebrated letters of GUY PATIN will see the intense acrimony and bitterness displayed in the discussions between the admirers and denouncers of this potent drug. It is a strange comment on the inconsistencies and prejudices of individuals, even of extensive learning and cultivated minds, to see a court physician like GUY PATIN—a man well educated in his profession, a classical scholar, thoroughly versed in the history of medicine, and an active practitioner—abuse, vilify, and condemn in the strongest terms all those in favor of the use of antimony, whilst he boasts again and again of curing his own patients with ten, twenty, or thirty bleedings! How prone are men to run into extremes!

Early in the sixteenth century, PARACELsus introduced zinc into medical practice, and GAUBIUS, the pupil and afterwards successor of BOERHAVE, recommended the white oxide in chlorosis. It is thus seen that, although zincum was used medicinally as soon as antimony, and sooner than calomel, it yet remains comparatively neglected as an internal remedy, although a very valuable one in many diseases. It is very probable that the many essays and monographs on the remedial uses of new remedies have caused physicians to ignore, or at least neglect, old and well-tried remedies; and, although the great improvements of modern chemistry and pharmacy have largely contributed to a more successful system of therapeutics, yet in many instances it is doubtful whether we now do as much good with our concentrated acids, alkaloids, æthers, chemical salts, essential oils, etc., as our fathers achieved by means of their multifarious compounds. In the polypharmacy of the ancients, there were many ingredients entirely inert and superfluous, but others of much energy and virtue; hence their popularity; and it is very likely that some

of the electuaries of MITHRIDATES and ARTEUS would at this day prove more beneficial than the santonica, heleboria or inuline of modern chemistry. Whilst, therefore, it is the duty of the intelligent and progressive physician to take advantage of all the improvements and discoveries of science, he should not entirely overlook the old remedies endorsed by the illustrious names of past centuries. At the present time there seems to be quite a rage after new remedies, and especially after new chemical preparations, and we can scarcely read a current issue of any of our medical journals without meeting with something relating to the curative virtues of some recent chemical preparation. In regard to the bromide of potassium, carbolic acid, iodide of ammonium, iodide of calcium, bromide of ammonium, and chromic acid, this is carried to such an extent as strongly to call us back to the days of ANDROMACHUS, ANTONIUS MUSA, and MITHRIDATES, when the favorite remedies of each were so universally efficient that there was scarcely any use for any other remedy. But I will venture the prophecy that in less than a century the reputed astounding virtues of carbolic acid, bromide of potassium, etc., will be as completely ignored as the present generation ignores the once vaunted efficacy of the laser cyrenaicum, the balm of Gilead, etc.

1316 OLIVE STREET, ST. LOUIS.

*ON THE RADICAL TREATMENT OF CHRONIC OTOR-
RHOEA (PURULENT OTITIS MEDIA).*

By N. C. WASHINGTON, M.D., (of St. Louis), Vienna, Austria.

Inflammation of the mucous membrane of the tympanic cavity is a disease of every-day occurrence in general practice, and one which, if neglected or injudiciously treated, is very apt to assume a chronic form marked by purulent discharge, and leading, perhaps, to the most

serious complications. The long-continued discharge of acrid, purulent matter gives rise, in the parts of the ear immediately connected with the tympanic cavity, to destructive changes, which may extend to the nervous apparatus, or may even prove fatal by inducing caries of the petrous portion of the temporal bone at the base of the cranium. Hence the importance of carefully examining the ear in every case of *encephalitis*, and more especially of cerebral symptoms occurring in the progress of or following an attack of scarlatina.

Many cases of catarrh of the tympanic cavity yield to the ordinary treatment, viz. : the Eustachian catheter, and the instillation of astringent solutions into the ear. We sometimes meet, however, with a form of otorrhœa, purulent and destructive in its course, which defies these simple modes of procedure, resisting even the instillation of the strong solution of nitrate of silver (15 to 20 grains to the ounce), so highly recommended by Prof. SCHWARTZE, of Halle.* In such cases the ear may be carefully syringed out daily, and the catheter faithfully used in the usual manner, and yet the discharge may continue as abundant as ever, while the excruciating pain of the disease undergoes no diminution. It is in connection with this class of cases that I desire to call attention to a method of treatment first introduced into practice in Vienna by Dr. EDWIN MILLINGER, now clinical assistant to Professor POLITZER. The method recommends itself as well by its simplicity as by the uniform success which has attended its application, both in clinical and private practice.

The theory of the treatment lies in the principle of securing perfect cleanliness. The object to be attained is the healing of the diseased mucous surfaces by keeping them thoroughly cleansed from all acrid secretions. This can not be effected by the mere injection of tepid water into the

*Although, doubtless, a most valuable remedy, experience in Vienna has not sustained Prof. SCHWARTZE's assertion that every otorrhœa must yield to the employment of this remedy.

external meatus, for the reason that the walls of the meatus are often thickened and its calibre diminished by the disease, and secondly, because no more of the secretion can be thus removed than lies in front of the membrana tympani, that which lies behind it being out of the reach of the syringe, even though the perforation of the membrane be a rather large one. The passage of air, too, through the Eustachian tube, whether by the use of the catheter or according to POLITZER's method, so valuable in most forms of aural disease, is here altogether inadequate, the continued disagreeable odor of the discharge being sufficient proof that pus is still confined in the ear. In examining the faucial opening of the Eustachian tube, the mucous membrane is found to be inflamed and softened, or even in a state of ulceration—a condition which may be assumed to extend throughout the entire length of the tube. The patient complains, too, of a disagreeable taste in the mouth, dependent upon the discharge of matter from the Eustachian tube into the pharynx.

The method adopted by Dr. MILLINGER consists, first, in insuring the passage of air into the tympanic cavity by the ordinary methods. The Eustachian catheter is then introduced, and firmly fixed in position. Then, with a syringe adapted to the catheter, tepid water is passed carefully through it. The pus is thus made to pass partly out through the perforated membrana tympani, and partly into the pharynx, by the side of the catheter. After thus literally bathing the diseased surfaces, a weak disinfecting solution of hypochlorite of soda is injected, to be followed by a weak astringent solution, either of zinc or silver.* The relief from pain is almost immediate, the cure speedy and permanent.

* Solutions of sulphate of zinc or nitrate of silver are the best astringents for use in the manner described, and for instillation into the external meatus. The formerly much esteemed acetate of lead should never be used, as this salt forms a precipitate even in the weakest solutions, giving rise to irritation as a foreign body, and having much the same mechanical effect as the chalky degeneration often seen on the membrana tympani.

For the history of the following case, the previous treatment, and the accompanying sketch, I am indebted to Dr. MILLINGER himself. It is a statement of the first case in which the treatment was tried :

A Jewess from Galicia, aged 23, came to the wards on the 20th of July. She was pale, anæmic, and of hysterical appearance. She said that after an attack of typhus fever in the summer of 1866, she experienced a shooting pain in the left ear, which lasted one week, and then passed off, to return again after an interval of a week. This continued for about six months. In the winter of 1868 the pain became continuous. Then the ear began, for the first time, to discharge, which continued to the time she presented herself for examination. She remarked that relief followed from the discharge, and that whenever the discharge diminished the pain would again become excruciating for three or four days. On examining her ear (the left), the meatus externus was found to be full of thick, adherent pus, which was with difficulty removed by syringing. The membrana tympani was red, inflamed, and projecting forward. On the inferior surface of the meatus, just in front of the membrane, was a quantity of pus. On making Valsalva's experiment (causing the patient to blow through the nose, with mouth and nose closed), the pus slowly oozed out through the perforation in the membrana tympani, until the whole meatus gradually became filled. This was repeated several times, with the same result. The Eustachian tube, and throat on the affected side, were highly inflamed, and behind the tonsils was an ulcerated streak, evidently caused by the acrid, purulent secretion from the Eustachian tube.

The perforation being a small one, an opening was made in the membrana tympani, in order to give free exit to the pus. Great relief was afforded by the operation. The ear was then syringed out, and a solution of zinc—five grains to the ounce—was ordered. The amelioration lasted two weeks, but the pain then reappeared, gradually increas-

ing in severity. She came daily, and was catheterized, and was ordered a syringe to use at home, in order that perfect cleanliness of the ear might be secured. Again there was a period of rest of fourteen days, and again the pain and running from the ear appeared, but more violent than ever, and accompanied with fever, loss of appetite, and great prostration. The paracentesis of the membrana tympani was repeated, and was again followed by a short period of rest. This state of things continued for two months, the disease steadily increasing in severity. In this short space of time she had been operated on five times. On the 5th of October she came to the wards. She said "that life was intolerable, and that she must have relief." She was willing to submit to anything that could purchase a moment's rest. During the progress of the disease a new method of treatment had suggested itself to Dr. MILLINGER, and he determined to carry his thought into execution. The patient was made to understand that the passage of the catheter over the inflamed membrane could only be accomplished with pain. Being a sensible woman, she consented to the trial. The procedure was as I have indicated—with the catheter introduced and firmly fixed. The diseased mucous membrane was thus bathed in tepid water for the space of ten minutes; afterwards some drops were injected of the zinc solution, of the same strength that had been formerly introduced through the meatus externus. The water which the patient spat out contained large masses of stringy, yellow pus. The external ear was also thoroughly cleaned with the syringe, and the same solution dropped into the meatus. She was ordered to return the next day. She came punctually at the appointed hour. The pain had greatly abated, and the discharge was much less in quantity and more serous in character. The treatment of the previous day was repeated, and so on until exactly one week after the commencement of the new regime, when the pain and discharge had entirely ceased, and but faint traces of the original disease remained. By

way of precaution, the treatment was continued for one week longer. The ear was then examined for the last time. The membrana tympani, with the exception, of course, of the perforation, was entirely normal. The patient remained in Vienna for one month longer, during which time there was no return of the disease.



Fig. 2.

Fig. 2 represents the thickened and inflamed membrana tympani at the commencement of the treatment, showing the oozing of pus through the opening in the lower part of the drum.



Fig. 3.

Fig. 3 shows the appearance two weeks later. The discharge of pus had wholly ceased, and the membrane had (with the exception of the perforation) recovered its normal character.

This case was followed by several others of the same character, which were all subjected to the same treatment, and with the same happy result. Cases at the very verge of gangrene have been brought, by this simple and effective mode of treatment, to a happy termination. It is within the reach of every practitioner who is acquainted with the anatomy of the Eustachian tube, and has the ability to pass the catheter.

In the beginning of this communication, I referred to the form of chronic otorrhœa following scarlatina. Every physician who has had to combat this troublesome disease well knows that the fever is least of all to be feared—that such complications as keratomalakia, abscess of the parotid, diphtheria, ozæna, hydrothorax, hydropericardium, ascites, etc., are his real enemies. It is strange that while he is fully alive to the importance of any of the above mentioned complications, he dismisses otorrhœa from his mind with a prescription of some astringent drops, and calms the fears of the friends by telling them "it is a simple running of the ear, which will disappear as soon as the child recovers its strength." A glance at the anatomy of the external meatus

in its relation to the mastoid cells is sufficient to show how unwarrantable such a statement is. The individual, if he escapes a more disastrous result, will be found, if examined after the discharge has continued for six months, with a perforation of the tympanum certain, a chronic purulent catarrh of the tympanic cavity probable, and a caries involving the portio dura possible. Such are some of the results of a neglected or maltreated otorrhœa. The method of treatment devised by Dr. MILLINGER is here regarded as a most valuable addition to the therapeutics of the ear.

NOTE.—This mode of treatment must not be confounded with the nasal douche of WEBER (Thudichum), from which serious results have been occasionally observed. (See two cases reported by Dr. ROOSA, in the *Archives for Ophthalmology and Otology*, Vol. 1, No. 1, and Dr. KNAPP, in the *Transactions of the American Otological Society for 1869*). In the method of Dr. MILLINGER, the stream of water is directed by the catheter upon and into the faucial orifice of the Eustachian tube.

FRACTURE OF THE FEMUR FROM NECROSIS.

The Os Femoris, after the Separation of a Piece Four Inches in Length of Its Entire Continuity, Successfully Repaired.

By H. G. LACHMUND, M.D., of Sauk City, Wis.

On August 12th, 1868, I was called to see the daughter of Mr. Str——, aged four years, residing in an adjoining town. I was told by her mother that she enjoyed good health until the beginning of the present month. The complaint for which medical aid was sought, presented itself as a painful swelling of the left thigh, commencing a little below the great trochanter and running down on the outer side near to the knee, most prominent in the middle, very painful to the touch, covered with skin of a natural color.

The affection had made its appearance three days previously. High fever, hard pulse (130), violent thirst, tongue coated white, restlessness and want of sleep, incessant pains at night,—these were the concomitant symptoms.

In my investigations as to the cause of the present affection, I was assisted by the fact that I had attended the sister of the patient, several years before, while suffering from otitis scrofulosa, and that the mother then had upon her neck a large scar from a scrofulous ulcer.

By ocular inspection I discovered that both tibiæ were bent, but nothing more of causal moment. Mechanical influences had not acted upon her. Treatment: *Mixtura salina*; local depletion by cupping; unguent. *hydrargyri*; antiphlogistic diet; absolute rest of the affected limb.

August 14.—Fever moderate; more rest; local affection about the same. Treatment continued.

August 17.—Fever less; swelling of the limb subsiding. Scanty diet; no internal medicine; locally, tinct. of iodine.

August 24.—No fever; tongue clean; good appetite; swelling almost gone. Scanty diet; rest; no medication.

September 1.—The patient having been permitted the free use of the limb, shows it to be affected anew. The resolvent remedies are again applied, but now fail entirely.

September 10.—A large abscess appears on the middle of the thigh, which, upon being opened by a lancet in the interstices of the *musculus vastus externus* and long head of the *biceps*, reveals, on probing, that the bone is denuded. Application of warm poultices.

September 12.—Another abscess appears near the knee, which, upon being opened, discharges a considerable amount of pus. The two incisions communicate. The silver probe shows the *os femoris* affected for four inches, and is blackened. The patient falls away rapidly. *Diarrhœa* sets in, and perspiration becomes profuse. Treatment:—Restorative diet; Peruvian bark with iron; aromatic poultices.

September 14.—Swelling decreasing. Appetite returning; better rest; diarrhœa checked; discharge from both incisions free and copious. Treatment unchanged.

September 16.—Suddenly the shape and position of the thigh are totally changed. The outer side of the foot rests on the bed. The affected extremity is shortened one inch. The thigh bone forms an obtuse angle, the vertex of which points outward. The movement of the limb is obstructed and very painful. An oblique fracture of the thigh bone, three inches above the knee, running from inside and above, downward and outward, was easily discovered. The patient being put under the influence of chloroform, the reduction of the bone was easily performed, but considerable difficulty was experienced in devising a bandage which would keep the limb in the proper position, allow a free discharge of matter, and permit the cleaning and dressing of the wounds. I chose for this purpose an inclined plane from which the board, upon which the thigh rests, was removed, and the board for the reception of the leg so constructed as to allow easy change of the angle. The knee end of this board was placed so high that the weight of the body effected the counter-extension desired. By these means the wished for object was perfectly attained. The limb, placed in this position, corresponded in length with the sound limb, and the direction proved satisfactory. As to the cause of the fracture, nothing could be determined. As I was informed by the parents, the patient had not left the bed since the 14th of September, the date of my last visit.

September 17.—Length, form and direction of the leg good; general state of health improving; suppuration copious. The restorative treatment continued.

September 20.—General state of health and suppuration the same. The fracture presents a tendency to dislocate outwards, but direction and length of the femur are normal.

September 28.—Patient gathers considerable strength. Quantity and quality of the suppuration the same. Both

fragments more dislocated towards the outside. Direction and length of the femur is still normal.

October 10.—The femur presents a very disagreeable shape. The lower fragment of necrosed bone is entirely dislocated, and again forms on obtuse angle. The upper fragment is partially dislocated, but not as far as the lower one. From the upper incision several small pieces of bone have been discharged. Notwithstanding the dislocation of the bone, as above stated, the length and direction of the limb remain normal.

October 20.—The planum inclinatum having been removed, a perfect solid callus, four inches long, is found to have been formed, the size of which considerably exceeds that of the sound os femoris. On the outer side of it the lower fragment is situated, as a sequestrum, which is entirely movable by the use of two probes inserted into the incisions. Several pieces of bone—fifteen in all—varying from 1-4 to 1 inch in length, have successively issued from the upper cut, by which process the upper fragment has been removed entirely. The length of the limb is normal. The patient is able to place her foot in a proper position, and her entire system is in an active and healthy condition.

In order to easily remove the remaining fragment, it would have only been necessary to enlarge the upper incision about half an inch. To this the parents objected, and no reasoning could induce them to consent to this trifling operation. Consequently nature was left to accomplish this.

On the 25th day of December, 1868, the upper incision was sufficiently extended to allow the protrusion of one end of the fragment, so that the mother, with the aid of a piece of twine, extracted it. On the removal of the fragment the wounds healed rapidly, and the patient has ever since enjoyed good health.

The annexed wood-cut represents the sequestrum in its full size. The upper end shows the oblique surface, a little eroded by absorption; the lower end was situated above the

external condyle; the sequestrum is viewed from the outer surface, on which the cortical substance of the bone remains, with the exception of a small strip, represented by the dark line. The inner surface is like the outer, there being also a similar erosion of the cortical substance. With the exception of these defects of the cortical substance, the bone is sequestered in its entire continuity.*



Fig. 4.

In reviewing the facts of this interesting case, considering the size of the fifteen small pieces of bone, together with the fragment represented by the sequestrum, I believe that I am justified in estimating them equal in volume to the latter, so that a four-inch piece of the shaft of the femur has been necrosed and the defect repaired by new bony substance. And indeed the size of the callus corresponds with this estimate, as a re-examination of the limb one year after the removal of the sequestrum (December, 1869), showed the callus to be of the same circumference and length it was at the time of the removal of the sequestrum.

Removal or partial absorption of the ensheathing callus, under the head of which I should classify the above callus, has not taken place in this case, as is said by other authorities† to occur. The only change that has taken place in this case is that the callus is slightly bent, and in consequence thereof the limb shortened about half an inch. Its motion, however, is not impaired. The carriage of the child is perfectly straight; she walks, runs, jumps with perfect freedom and ease, and not the least trace of limping is observable. She enjoys perfect health now.

SAUK CITY, *January, 1870.*

* The specimen is in possession of the Editor of this Journal.

† PAGET, *Surgical Pathology*, Second Ed., page 165, et seq.

ON CONGENITAL TALIPES.*

By WILLIAM S. EDGAR, M.D., St. Louis.

My object in this brief article is to remind my professional brothers that the time *par excellence* for the treatment of congenital talipes is immediately after birth, and that the most successful method of treatment—at least in my hands—is that by elastic extension. I will not say other methods do not succeed, but I will say this method does succeed in my hands, and, as I have witnessed repeatedly, in the hands of others, and to my mind, is the most *scientific*, because it harmonizes with our knowledge of the anatomy and physiology of the parts better than any other proposed method of treatment.

Thirty years ago the parents of a male infant, born in Ohio with talipes varus of both feet, took their infant to the city of Cincinnati to consult the late Dr. MUSSEY, whose reputation as a surgeon was at its zenith, and hardly surpassed west of the Alleghanies. After examination, the Doctor informed the anxious parents that “nothing could be done *then*,” that they might return home and wait until it was five or six years old, “when he might operate, and possibly straighten its feet.” Why this was not done at once, matters not. The patient, now in the prime of life, is making the journey of life as best he can, with the deformity to impede, embarrass and annoy him at every step. Should a like case be presented at the present time to any distinguished surgeon of Cincinnati or other place, he would not send it away to wait five or six years before anything could be done, but begin the treatment at once, and have the deformity overcome before the child was old enough to walk, securing symmetry of development and ease and grace of movement not to be expected if the treatment is deferred to the period of youth or adolescence.

* Read before the St. Louis Medical Society, November 20, 1869.

I take pleasure in presenting for the inspection of the profession a simple appliance I have had in use some months on a case of congenital talipes equino-varus. I say pleasure, because it has acted so admirably in correcting the deformity, and because it is so simple of construction, free from expense (the materials being always at hand in the country or city), all that is needed being a piece of tin, a piece of wood, a piece of wire, and a lady's garter, or strip of elastic. The piece of tin, you will observe, is about one and a half inches by three, with the edges turned down; at one end a hook is inserted of wire doubled, two holes being made through the tin, and the ends of a piece of wire about three inches long passed through and bent over, form the hook, which is on the upper edge of the tin, when adjusted to the limb. The sandal of wood, cut

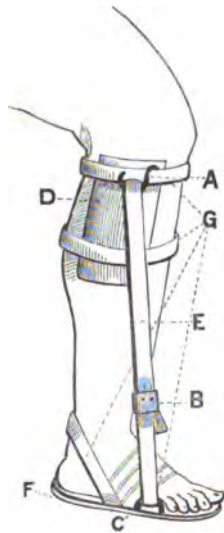


Fig. 5.

A, hook; B, buckle; C, loop; D, tin, covered with adhesive plaster; E, elastic band; F, sandal; G, adhesive straps.

to fit the sole of the foot, has a loop formed of wire, the two ends of the wire being passed through holes half or three-fourths of an inch apart at the margin of the outer aspect of the sole, back of the little toe. This sandal is attached to the sole of the foot with adhesive straps passed over the dorsum of the foot and under the sole, several turns, securing it firmly; also a strap of adhesive plaster from above the heel, over the tendo Achillis, crossing under the foot to secure it from sliding back.

The elastic being attached to the loop on the sandal at one end, is drawn sufficiently taught, and secured to the hook on the tin, which is made fast to the outer and upper portion of the leg with adhesive plaster, which envelops the tin with plasters partially encircling the limb. Next a roller of soft muslin, about two inches wide, is passed over the adhesive straps on the foot,

and continued up the limb to support the plaster holding the tin and to prevent the youngster from kicking it off, which he will do about every two or three days, so as to require readjustment, if applied with all the care and skill possible; and whether he does or not, it is best to remove it every two days, and thus promote the circulation. In very hot weather I have applied the roller first and the adhesive plaster over the roller, to prevent excoriation of the delicate surface. In this way I have kept up the extension for months during the hot season, without the slightest abrasion or pain, and with satisfactory results, from four to six months being generally required to overcome the deformity. * Under this pull, the tendo Achillis gradually lengthens, letting the heel down, and by its pressure promotes absorption of the tarsal bones, in redundancy or malposition, i. e., the pull at the ball of the foot against the pull of the tendo Achillis produces pressure at the dorsum of the foot, which we believe greatly facilitates the return of the tarsal bones to their normal position; hence, in these cases, to divide the tendo Achillis would prove a decided detriment.

The appliances figured in Dr. PRINCE's work on orthopædic surgery are applicable to children or youths, but not to infants, the points of attachment of the elastic being too near to allow of sufficient elasticity. The firm wood sandal is also needed to distribute the bearing upon the sole of the foot, for the twofold object of preventing the foot from rolling upon itself, and to prevent excoriation. PRINCE mentions this need in his book referred to above, and recommends a cast of rubber to make the pull from, but admits an objection to the rubber on account of liability to excoriation. DAVIS, of New York, advises the interposition of a piece of sole leather under the plaster next to the sole of the foot, but to make the pull from the plaster. I think it more simple to carve a piece of wood to fit the sole, or a little longer, and insert a loop at the outer margin, as PRINCE does in his rubber envelop, and make the pull from

the loop, as shown in the figure. We find this precaution necessary in the treatment of *infants*, to prevent excoriation. PRINCE says in his publication of 1866 that "the appliance which most perfectly imitates the hand is the desideratum, as no hand can be constantly employed to restore and preserve function," as well as correct the deformity. I prefer the *constant pull* with elastic, and gentle manipulation with the hand occasionally, when readjusting the extension. Of course if the deformity is reversed, i. e., if the talipes is of the variety valgus, the application must be made on the inner aspect of the limb; but the same appliance is equally adapted, and may readily be modified to meet the varieties and complications of these deformities, talipes varus and valgus being much the most frequent varieties *congenital*.

For the idea to place the hook at the top of the tin plate, we are indebted to BARWELL. PRINCE has contributed many practical suggestions on this subject in his work on deformities. When this subject was before the St. Louis Medical Society, some months ago, I noticed an incidental remark by some member (Dr. HODGEN, I believe), to the effect that the proper time to treat these deformities was immediately after birth, and that every general practitioner should give sufficient attention to the subject to be familiar with the most approved methods of treatment, and make faithful application of the same without delay. With this sentiment I most heartily concur. I have not made the correction of deformities a special study further than to be advised of the most approved methods of treatment for *infants* and children, that my skirts might be clear of the sin of omission, whereby irreparable loss might come to our patient by delay. Neither have I seen the way clear to turn over this class of patients to the instrument-maker, or artisan of any kind, as a delicate adjustment of forces is required, involving a knowledge of the anatomy and function of the various organs or parts concerned. As well might we turn over the obstetrical forceps to an ignorant

midwife, because their use is mechanical. Therefore, let no member of our profession, in *general practice*, excuse himself from the faithful study of this subject, that his little patients, having been rescued, by his timely interference, from a life of misfortune, may have occasion to hold his name in grateful memory.

CASE OF WOUND OF THE BRAIN.

Breech-pin of a Shot-gun blown out, entering the Brain four and a half inches—Recovery.

By D. D. HALSTED, M.D., Laclede, Mo.

On October 21st, 1869, Charles Watson, aged 17, of temperate habits and vigorous constitution, while out fowling with a single-barrelled shot-gun, had the breech-pin of his gun blown out while taking aim, the sharp point of the back end striking the forehead in the frontal suture, midway between the coronal suture and the base of the os frontis, passing through the integuments and the os frontis, lacerating the falx cerebelli, penetrating the anterior lobes of the cerebrum four and a half inches, literally crushing the os frontis for a space of one and a fourth by one and three-fourths inches square, destroying one and three-fourths inches of the longitudinal sinus, and detaching the internal lamina of the os frontis from the lower edge of the opening made by the entrance of the breech-pin all the way to its base, causing severe hæmorrhage from the longitudinal and frontal sinuses. A splinter of the gun-stock struck the right superciliary arch, directly above the right canthus internus, depressing that portion of the frontal bone immediately superior to the nasal bones, so far as to cause its fracture from the internal canthus of the left orbit upwards into the main aperture made by the breech-pin.

When injured he was alone. His own statement is that when injured he did not for a moment lose consciousness, but the shock was so severe that he dropped on his hands

and knees, and for some time heard a loud, prolonged ringing in his ears. After a few moments he rallied from the shock, and in wiping the blood from his face, he felt the breech-pin protruding about half an inch from the forehead. This he got hold of and pulled out. He then washed his face in a pond of water close by, and lay down a short time to rest himself, after which he got to his horse and, mounting, rode to the nearest house, over a mile distant, where he arrived bewildered and half unconscious. When I first saw the patient, nearly twelve hours after the accident, I found him lying on a bed in a semi-comatose condition, the eyes swelled and shut, the upper part of the face and forehead burnt and blackened with the powder. Dr. THOMSON had been called in, and had sewed the wounds in the scalp as well as he could, and the brain broken up was finding its way freely to the surface between the sutures. Considerable hæmorrhage was taking place through the posterior nares into the stomach, from which the blood was ejected every few minutes. The house in which I found him being a log cabin, very open and without a window or any other means of obtaining light, except through the door or between the logs where the chinking was out, I had him placed on a sleigh, and removed to his own home, nearly three miles distant. I then proceeded to operate, making an incision through the integuments in the shape of an inverted U, commencing a little inside of the center of the left superciliary arch, passing upward, to the right, and downward, terminating at a corresponding point over the right superciliary arch, including both the wounds within the line of the incision. On separating the integuments from the cranium within the circle of the incision, a large opening in the os frontis, measuring one and three-fourths inches in length, extending from the center of the frontal bone downward towards its base, including the frontal suture, and one and a quarter inches wide, extending from the right side of the frontal suture to the left. The opening was filled up with the protruding substance of

the broken brain, intermingled with fragments of bone. The latter I removed, and then inserted my finger in the wound its whole length; I could not reach the termination of the track made by the breech-pin, but was enabled to ascertain the depth and locality of numerous fragments of bone, some of which were over two inches from the surface. These I extracted as carefully as I could; also a 3-4 inch screw, which was buried about two inches in the substance of the brain, making in all over thirty-eight fragments of bone removed from the wound, and one 3-4 inch screw. Some of the largest fragments were over half an inch square. The direction of the iron from its place of entrance was backward toward the occiput; slightly downward and to the right, apparently nearly touching the petrous portion of the right temporal bone. Passing my finger downward along the frontal suture inside the frontal bone, I ascertained that the internal plate was separated from the external all the way to the base of the os frontis, leaving the frontal sinus destitute of its posterior wall, and its anterior wall completely detached from the os frontis and nasal bones, but attached to the integuments. This I placed in proper position as well as possible, and placing the integuments in position over the fracture, secured with sutures, and ordered cold water kept constantly applied to the whole anterior portion of the head, and gtt. x of conct. tinct. of gelsemium given every two hours, and in event of uneasiness or severe pains, morph. sulph., gr. 1-6, to be given every four hours.

October 23, 12.30 A. M.—Patient has slept well; pulse sixty-eight; respiration slow; temperature cool; is rational, but I forbid any one talking to him; gelsemium continued; also, a Seidlitz powder every four hours.

October 24, 10 A. M.—Pulse seventy-two, and soft; tongue coated; bowels not operated; sleep natural; skin cool. Treatment continued.

October 25, 2 P. M.—Pulse seventy-two, and soft; tongue coated; bowels open; sleep natural; respiration

slow; skin cool; has slight appetite; incision uniting by first intention nearly its entire length; brain protruding through the wound made by the breech-pin.

October 26, 8 A. M.—Pulse one hundred; quick, feeble and irregular; tongue coated; urine retained; face flushed; skin hot and feverish; slight delirium; has had two convulsions during the night; no symptoms of suppuration commencing near the surface of the wound; incision united its whole length, except where I have kept it open with tents. 2 P. M., pulse seventy, softer and better volume; delirium abated and succeeded by a semi-comatose condition; no operation of the bowels. Treatment continued, with addition of half a drachm of sweet spirits of nitre every two hours; ice applied all around the head and to the cerebro-spinal region.

October 27, 10 A. M.—Pulse seventy-six, feeble and soft; no operation of bowels; urine natural in quantity and quality; sleep good; respiration quite slow; slight feverishness. Treatment continued.

October 28, 10 A. M.—Pulse one hundred, irregular, quick and feeble; sleep profound, verging on coma; respiration slow and slightly stertorous; has had four convulsions during the night. Continued treatment. 5 P. M., pulse eighty-two; sleep more natural; respiration more natural; one slight convulsion since noon.

October 29, 8 A. M.—Pulse eighty-six; bowels open; appetite pretty fair; sleep restless; skin cool. 4 P. M., pulse eighty; skin rather hot; slight delirium; suppuration has commenced, but is very slight; up to the present time his memory has seemed quite defective.

October 30, 11 A. M.—Decidedly better; pulse eighty-four; bowels open; appetite good; sleep and respiration quite natural; skin cool.

November 2, 2 P. M.—Pulse eighty-four; tongue clean; bowels open; appetite good; sleeps well, and is refreshed thereby; respiration is natural; wound is suppurating freely; pus laudable; strong hopes of ultimate recovery.

November 22.—Has continued rapidly improving up to the present time; he is now able to be up in a chair most of the time, and walks around the house a little; edges of the wound have sloughed off, and the integuments retracted, leaving a large opening, filled with granulating excrescences, preventing the drawing of the edges of the wound together; dry calomel having been applied, and failing to remove the granulations, I have applied pulv. alumin. exsiccati, which is answering my expectations fully.

December 3.—Has continued improving, and is quite well; wound all healed over, except a small sinus through which three or four bone spicula have escaped during the last ten days.

January 10.—Rode to Laclede to-day, a distance of five miles, on horse-back; tells me he has been at work for several days; is very fleshy and ruddy looking; sinus still open, but discharging very slightly; four or five small spicula of bone have worked out since I last saw him, on the 3d ult.; says he experiences nothing unusual or different in his condition from what it was before he was injured; recollects perfectly everything that transpired previous to his removal home, but has no recollection from that time until the 30th of October; his statement of his actions subsequent to the injury was fully confirmed by the appearance of the ground where he had wandered, leaving a pool of blood to mark each place where he had halted a moment to rest or to wipe the blood from his eyes.

CASES ILLUSTRATIVE OF VARIOUS MORBID CONDITIONS OF INNERVATION.

By THOS. FOX, M.D., Resident Physician Quarantine Hospital.

The following cases are illustrations of paralysis, anæsthesia, pain, and alterations of nutrition and secretion, caused (with the exception of the last) by reflex irritation originat-

ing in the trunk or peripheral distribution of spinal nerves, propagated from thence to the spinal cord, through this to the origin of the nerve at the ultimate distribution of which the change takes place; thence along this nerve trunk to its periphery.

CASE I.—*Constant and Severe Pain in the Stomach, with Vomiting after taking Food, caused by Implication of a Divided Nerve in Cicatrix.*—Owen S——, æt. forty-two. Received a wound in the abdomen, through which the bowels protruded; they were returned, and the wound closed by suture. It healed without any bad symptom. The wound was about two and a half inches in length, two inches above the ant. superior spine of the ilium, and nearly parallel to the fibres of the external oblique muscle. When the cicatrix had formed, there began a constant and severe dragging pain in the stomach, with a constant desire for food, which was instantly rejected by vomiting unless taken in very small quantities. The pain in the stomach was increased by making pressure over the abdomen in such a manner as the produce tension upon the cicatrix, to the inner side of which cutaneous anæsthesia was present over a surface half the size of the hand. A blister was applied over the cicatrix, and in six hours there was complete relief from the pain, and cessation of vomiting, which continued during the two weeks he remained in hospital. From the sudden relief from the pain and irritability of the stomach, I have no doubt of the symptoms being induced by a deranged action of the pneumogastric nerve, the result of reflex irritation originating in the divided extremity of a branch of the lumbar plexus of nerves, which was implicated in the cicatrix.

CASE II.—*Pain and Anæsthesia.*—A. D——, æt. thirty-nine; received a kick from a horse over the spinal column, in the inter-scapular region; the greater part of the force, from the position in which he stood, being received beneath the posterior border of the left scapula. He recovered in a few days from the apparent effects of the injury. In

about a week he was seized with severe pain in the præcordial region; also, anæsthesia of the left arm, which became complete nearly to the shoulder. Motion was perfect under the guidance of vision. Upon making pressure over the spinous processes of the sixth and seventh dorsal vertebræ, the pain was so greatly increased in the præcordial region as to cause the patient to scream. The temperature of the left arm was much lower than the right, the radial pulse small and weak. Counter-irritation was used over the sixth and seventh dorsal vertebræ: sensation and temperature rapidly returned in the arm; the pain over the region of the heart became much less, and gradually disappeared. Evidently, the paralysis of sensation in the left arm was reflex, caused by irritation of the sixth and seventh inter-costal nerves at their exit from the inter-vertebral foramina, the pain in the præcordial region having a like cause; and the difference in the radial pulse of the right and left arm would indicate spasm of the blood vessels of the left arm as a cause of the diminution of temperature.

CASE III.—*Anæsthesia of the Upper and Lower Extremities, without Paralysis of Movement.*—B. B—, æt. thirty-seven. Two years previous to his admission to hospital, and immediately following a leap, began to be affected by a sensation of numbness in the lower extremities, which increased and extended upwards until the upper extremities were implicated. Sensation of all kinds was absolutely absent, as he might be pricked with a scalpel, or a coal of fire be placed upon any portion of his body below the fifth cervical vertebra, without any sensation being felt. There was no wasting of any portion of the body; the appetite was good, the pulse full and regular; he moved about by the aid of crutches, but could neither walk nor preserve the erect position if the vision was not directed to the limbs. Counter-irritation was applied along the spine in its entire length, and a strong induced current applied along the spine and over the different groups of muscles of

the limbs. Strong contractions were excited in the muscles over which the current was applied, but no sensation was felt until three weeks from the commencement of treatment, when sensation began to return in the arms, and gradually extended downwards. In two months it extended to the toes. He could walk without the assistance of crutches, or the eyes being directed to the limbs, the only remaining symptom being a sense of soreness and stiffness in the muscles of the calf. I could not observe the case further, he desiring to return to his home. I cannot venture to assert what was the nature of the lesion of the cord in this case; but the absence of sensation of all kinds below a certain point of the body would indicate some change of the central portion of the cord in the cervical region.

Reviews and Bibliographical Notices.

THIRD ANNUAL REPORT OF THE METROPOLITAN BOARD OF HEALTH OF THE STATE OF NEW YORK, 1868. Albany, 1868 (?). 8vo., pp. 635.

The Board of Health of the State of New York is fortunate in not only possessing an authority commensurate with the great ends it has in view, but in representing a people that appreciate its acts, and cheerfully submit to the expenditure that the Board may deem necessary in the prosecution of its duties. Year after year, since its organization, the Board has devoted its best energies to the sanitary improvement of the great metropolis of the country, and the good it has done is signally evidenced by the abatement of many of the crying evils so notorious in that great city.

Year after year it has published to the world at large a report of its proceedings—what has been done, and what it is proposed to do; and in each volume much is to be found of interest, not only to the general reader, but to scientific men. Composed of men representing talent of a high order, with energy and skill in the various employees, and a familiarity with the defects existing in the city, they make their yearly report a reliable book of reference for other sanitary Boards, and frequently introduce points of scientific interest that will merit the careful consideration of every medical man. Commencing with an abatement of the most marked evils, it has gradually enlarged its field of usefulness by taking under consideration questions less noticed, perhaps, by the people generally, but of equal, if not greater, importance to the health of the community; and in the examination of these, more interest is felt by the medical public on account of the scientific nature of the inquiries and investigations made. Besides Dr. HARRIS, the efficient hygienist of the Board, there have lately been added Dr. STILES as pathologist and Prof. CHANDLER as

chemist, so that there exists, in the Board itself, scientific talent sufficient to attract greater interest to the yearly publications, and make the orders of the Board more authoritative than before, in questions of sanitary science.

The volume before us presents articles of much greater interest than any previous publication of the Board; who, we conceive, deserve especial praise for the manner by which, and the purposes for which, they investigated the "Texas cattle disease" as it appeared in New York. Actuated by the laudable and well-formed purpose, "to arrest, discover, and control whatever removable cause of disease could be found operative upon the population of the metropolis," they entered into the subject with an energy and zeal that is especially praiseworthy; and, not stopping at the comparatively paltry question whether the flesh of cattle affected with that disease was wholesome, they went far beyond. They investigated the disease itself, its history, symptoms and pathology, with the hope that they might be able to offer something that would throw light on the cause of epidemics. Far-seeing, they sought after that by which they hoped to be able to arrest the disease, by a discovery of its cause. They not only satisfied themselves that the food derived from such animals as were affected by the disease was unhealthy, but they endeavored to embrace the opportunity offered to them to study the disease in its origin as well as effects. The manner in which they have prosecuted this study, and the success attending it, the report of 1868 clearly and worthily places before the public. Although it presents a clear and beautifully illustrated history of the disease, yet it does not claim to give the origin. This would be, doubtless, too much to expect, and yet the report presents a *probable* origin that, if established by future investigation, will sweep away all our previous ideas of disease, and bring to the physician's hand a power of saving life, or rather a power of preventing disease, that HIPPOCRATES never dreamed of. We speak of disease in general—in man as well as beast, for disease, in its origin, obeys the same general laws through the whole animal kingdom, however much it may differ in its manifestations in different classes. There has not been hitherto a sufficient amount of attention paid by scientific inquirers to a study of disease among the lower animals. Not a doubt exists but that, by a systematic series of studies, truths of the greatest importance to a

proper comprehension of disease in man could be gained, and it is strange that no one has followed out the plan. Animals being subject to man's will, fed, handled, confined, placed in whatever position he wishes, their bodies subject to an examination by the scalpel and microscope at any period of their disease or convalescence. What more fertile field of research could be desired? And yet but a limited advantage has been taken of the many opportunities presented. The treatment of sick animals for the most part is limited to sciolists, who are incapable of appreciating those great questions that run throughout all animal life. Nothing can be expected from these men to establish those great laws of disease, that, once fixed among the lower orders of animal life, we could easily adapt to the human race.

The source of the various epidemics that have from time to time swept over portions of the globe is as mysterious and incomprehensible now as it was centuries ago, for with all our boasted science and appliances, we can see no further through the darkness than our forefathers. Theory after theory has been advanced, plausible and expressive, but unsustained by any positive demonstration, and in these days something tangible is what we most earnestly desire. In what better way can we hope to reach this positive demonstration than by study and experimentation upon the lower animals? Domesticated animals have never been free from the influence of epidemical (epizootic) diseases. With them, as with man, periods occur in which thousands die. Until within the past few years, countries have been almost swept clean of one or another of the domestic animals, with no systematic efforts made to study the disorder. Fortunately, the study of the rinderpest in England, with other investigations in European countries, has initiated a movement that we trust may be followed in all countries with benefit, not only to the animals that contribute so much to man's comfort, but to man himself. No one can read the admirable report by the British commissioners, on the rinderpest, without being deeply impressed with its scientific excellence, as well as the influence of the facts it presents in the study of diseases in the human subject. In the volume before us there is also much to be commended, and some points in particular that demand our most serious consideration. If true, they point in a most emphatic manner to the method that must be employed, and a line of study that must be clearly followed, if we would hope to unravel the mysteries attendant on

the origin and propagation of disease. With such men as JOHN SIMON, LIONEL S. BEALE, SANDERSON, THUDICHUM, MURCHISON, JAMES Y. SIMPSON, and others equally famous as pioneers in the investigation of disease among animals, one could scarcely go amiss, or fear to soil one's scalpel by following in their footsteps.

In the report before us we find a mass of valuable evidence on the subject of the "Texas cattle disease," that reflects the greatest credit on the observers. The general symptom of the disease from its inception to death; convalescence, with its train of changes; post mortem examination *immediately* after the death of the animal, not only when it had succumbed naturally, but in earlier stages of the disease, when the animal was slaughtered; microscopic examinations of the various fluids and solids of the body *on the field*; careful chemical analysis of some of the solids and fluids; the history of the animals from the day of departure from their pastures to that of their arrival in New York; incubation and duration of disease; evidence from other sources in abundance, corroborative of that gained by the employees of the Board,—are presented clearly and comprehensively, so that all that is wanted now to complete the history is experimental inquiry touching the supposed origin. This could not be done with the means and time at the command of the Board, but will be done at some future time.

It is not our intention to give a general résumé of the disease, as its characteristic features are doubtless well known, and we shall notice only a few points that promise more than general interest.

The disease is one eminently of blood poisoning, in which that fluid is not only changed in its vitality—if that expression be allowed—but in its organization and chemical composition. Accompanying this there are found enlargement of the liver and spleen, with a fatty change in the former, and softening and disorganization of the latter. The kidneys often are enlarged, and always congested, sometimes softened. With the exception of some peculiar erosions in the rennet stomach, and an extravasation of blood there and throughout the intestines—particularly the rectum—no other special lesions were noticed. Dr. STILES, the pathologist to the Board, in summing up conclusions, says: "The Texas cattle disease is an acute, infectious, febrile disorder, attended by morbid action of the liver, its most distinctive phe-

nomena being explicable as the results of the hepatic affection. The dissolution of the coloring matter of the blood corpuscles in the liquor sanguinis and the hæmaturia are consequent upon the entrance of the bile into the blood vessels in whatever manner effected. That bile is mingled with the blood is proved by the yellow color of the serum, its yellow flocculi, its crystals of cholesterine, by the yellow drops in the epithelium of the tubuli uriniferi, by the yellow granules in the spleen, and by the hæmaturia. These results cannot follow the mere accumulation in the blood of the constituent elements of the bile; the proximate principles of the bile itself are there found. That the greatest facility exists for admixture of bile with the blood is shown by the repletion of the reticulum of bile ducts in immediate contact with the capillaries of the liver, as well as by the abundance of bile exposed to absorption by the mucous membrane of the intestines. The only alternative to this admission of the vitiation of the blood by bile, is the hypothesis, that the destruction of the blood corpuscles through another agent—that of infection for example—permits an accumulation of hæmatoidine, or of the coloring matter of the bile in the blood, beyond the capacity of the liver to remove it. The yellow flocculi of the liquor sanguinis and spleen would, however, be inexplicable on this hypothesis, while their formation through the agency of the liver is manifest.”

It is difficult for us to conceive, in this disease, an absorption of altered or healthy bile, previous to an altered condition of the blood in whatever manner effected. That the presence of the proximate principles of the bile in the blood would be followed by many of the changes found in the disease cannot be doubted, but that the train of blood changes with the usual fatal result which almost always follows, can be so fully traced to the influence of that secretion is open to grave doubts. We have been bred to the belief that all general diseases take their origin primarily in the blood, and whatever pathological changes found in it, or the solids of the body, were due to abnormal metamorphoses or mal-assimilation. This may be old fashioned doctrine, but we believe it to be true nevertheless. We would be inclined, therefore, to view the fact of the presence of the proximate principles of the bile as part of that result which follows the general contamination of the blood, through which all the depurating organs of the body perform their function in

an irregular or imperfect manner. Those delicate changes and transformations that momentarily take place in the blood, are beyond our scope—beyond the most delicate power of chemistry to define. Analysis may give the comparative amount of constituents, but utterly fail to touch those metamorphoses by which these constituents are formed, and the blood is made the life. The presence of biliary and urinary constituents, perhaps in an imperfect form, not adapted to the capabilities or affinities of the organs designed to throw them off, would add much to an already overtasked blood, and express their influence in the fatal result, as well as leave behind them changes in the solids.

In the microscopical examinations made, the ultimate biliary ducts were found distended with a yellow bile, and from their close "contact with the capillaries of the liver, as well as by the abundance of bile exposed to absorption by the mucous membrane of the intestines, the greatest facility exists for admixture of bile with blood." We cannot accept this as even a probable explanation of the mode of admixture. Is it probable that capillaries, from which material to compose the bile has been drawn so freely as to distend the biliary tubuli to repletion, should again absorb the elaborated bile until the blood becomes saturated? As to absorption of bile by mucous membranes, it seems to us that the process of absorption would materially alter the liquid; and besides, the animals did not usually present that appearance on dissection which would follow from such superabundance of bile, nor was bile so freely found in the intestines; and jaundice—in the cases around Saint Louis especially—was a rarity.

Probably one reason of the importance attached to the influence of the bile over the disease is the fact that in this fluid certain vegetable germs were discovered, which, it was thought, might explain the origin or propagation of the disease. Early in the investigation Dr. STILES' attention was attracted to the existence of minute vegetable germs in the blood and bile of diseased cattle. Their existence was in the form of spherical or irregular aggregations of micrococcus, of a nature that required the highest powers of the microscope to determine or study. Blood and bile from healthy cattle did not contain them, though carefully examined. After removal from the body, cryptococcus or torula cells were found in the liquid, resulting from the development of the micrococcus. Planted in boiled solutions of sugar, gum, and saliva, hermetically sealed, and kept at a temperature

of 100° F., for several days, the anaerophytic form was developed, which, planted on slices of apple, gave a fair crop of penicillium, as the aerophytic form of the fungus. It is not asserted positively that this microphyte is the source of contagion, but, taking into consideration its existence always in connection with the disease, that the type of fungus developed from the spores, is one that finds the grasses a proper habitat, a reasonable deduction is drawn that it *may* be the source. Prof. HALLIER of Jena—to whom was transmitted a portion of diseased bile, and who reports by letter—finds, and also cultivates, the spores, following them through the different stages of development to the aerophytic form. He asserts that the fungus from which the micrococci and cryptococci-like cells take their origin, is a species of the genus *coniothecium*, and names it *coniothecium Stilesianum*, in honor of its discoverer. It is similar to the *coniothecium syphiliticum* in many respects, but presents sufficiently distinctive marks to merit a separate place.

Experiments were made with the view to determine how far the diseased organs could propagate the disease, but they failed to decide anything. Dogs fed on diseased livers almost immediately ejected them. Injections of bile into the blood vessels of animals, as would be expected, proved rapidly fatal. Rabbits fed on bread soaked in diseased bile, lived from one to four weeks, when they were attacked by symptoms similar in some respects to the more chronic form of the malady, and died in convulsions. Post mortem examinations showed some erosions in the stomach, but no other specially described lesion. No microphyte was found except the *cryptococcus guttulatus*, which is always found in the rabbit.

The question of the influence of these spores in the propagation of the disease, is an interesting one, and coming just now, when the medical world is somewhat excited over the "germ theory of disease," is worth careful consideration. It would be wrong to form any decided opinion, until further research is made. No doubt when opportunity offers extensive experimentation will be attempted, and should the origin or means of propagation of the disease be found to depend on this minute spore, we cannot estimate the influence it will have over our ideas of disease in man. The views of PETTENKOFER as to the

propagation of cholera, although not yet adopted by the medical public, is attracting great attention and discussion, and the discovery of Dr. STILES, if confirmed, would go far in corroborating the new theory. The specific nature of diseases will, we believe, be proved at some day, whether the specificity be found dependent on vegetable organisms or other causes. The germ theory lately has been advanced very strongly, but yet without any positive demonstration in its favor. Many germs have been discovered, and have lived a brief existence, but unsustained by the light of continued research have dropped out of sight and out of mind. Will the same be the result with these spores? We cannot say until experiments have tested the truth. One important fact we think should be borne in mind, viz: that the spores are simply spores of a certain fungus. No mention is made that any other development is found in the bile or blood, *within the system*, although, when the bile was removed, other forms soon sprang up. The spores were circulating and existing simply as spores, and the doubt arises in our mind, what possible influence could these spores exercise as long as they remain in that form. Were the spores not only found in that simple form, but also in a stage of development, then more reasons might be adduced as to their influence. In the development, for instance, to the anærophytic form, the source and material of change must be found in the fluid in which they are immersed, and hence, in the blood, might derange, to a great extent, those metamorphoses upon which the integrity of the blood depends. But in the form of spores, without any change, they would simply circulate, if not as innocuous matter, still not as that which produces death in almost every case. We must await further developments to determine whether the spores act as the cause or are simply factors in the development of the disease.

There are other points of interest in the Report which we would be pleased to present, but our interest in the cattle disease has drawn from us more than we intended. At some future time, probably, we may notice other points.

We must express our unqualified admiration for the magnificent chromo-lithographs illustrative of the cattle disease, copied from drawings made of specimens as soon as removed from the body, and colored to nature. The lithographs present as natural and as exact an appearance as if drawn and colored by hand.

They give a perfect idea of the organs as they present themselves in the Texas cattle disease.

J. W. C.

SLEEP AND ITS DERANGEMENTS. By WILLIAM A. HAMMOND, M.D., Professor of Diseases of the Mind and Nervous System, and of Clinical Medicine, in the Bellevue Hospital Medical College, etc. Philadelphia: J. B. Lippincott & Co., 1869. 12mo., pp. 318.

[For sale by Keith & Woods, Booksellers.]

While this book lay upon our table, we chanced to read a very recent essay by Prof. MAX. MÜLLER, of Cambridge, England, a man prominent among the thinkers of the day, and were struck with the following passage and its apposite quotation:

"It is true, also, that the science of psychology, which forms the basis of juridical, ethical, and religious science, is imperfect unless it has its foundation in physiology. 'La tendance de la physiologie moderne,' as M. CLAUDE BERNARD remarks, 'est donc bien caractérisée; elle veut expliquer les autres phénomènes de la vie; et si elle reconnaît avec raison qu'il y a des lacunes plus considérables dans nos connaissances relativement aux mécanismes fonctionnels de l'intelligence, elle n'admet pas pour cela que les mécanismes soient par leur nature ni plus ni moins accessibles à notre investigation que ceux de tous les autres actes vitaux.'"

That Dr. HAMMOND is decidedly under the influence of this tendency of modern physiology, would appear from the following passage (p. 111):

"Writers who contend for the doctrine of constant mental activity, regard the brain as the organ or tool of the mind, a structure which the mind makes use of in order to manifest itself. Such a theory is certain to lead them into difficulties, and is contrary to all the teaching of physiology. The full discussion of this question would be out of place here. I will, therefore, only state that this work is written from the stand-point of regarding the mind as nothing more than the result of cerebral action. Just as a good liver secretes good bile, a good candle gives good light, and good coal a good fire, so does a good brain give a good mind. When the brain is quiescent there is no mind."

A large and respectable class in the profession will look with suspicion upon Dr. HAMMOND's conclusions, after reading this declaration of faith, and will be apt to regard his labors as futile, so far as they are logically founded on this basis; but they will not be, therefore, justified in rejecting the physiological views

which he establishes by observation in connection with sleep and its derangements.

Dr. HAMMOND holds that the brain, like the other organs of the body, requires rest from its functional activity for purposes of repair, and that, as the other organs have a smaller supply of blood during the intervals between their periods of activity, so also it is with the brain. He holds "that the *immediate* cause of sleep is a diminution of the quantity of blood circulating in the vessels of the brain, and that the *exciting* cause of periodical and natural sleep is the necessity which exists that the loss of substance which the brain has undergone, during its state of greatest activity, should be restored." He gives in detail the cases and incidents that led him to these views, which he supports by experiments conducted in the following manner upon rabbits and dogs: The instrument used "consists of a brass tube, which is screwed into a round hole made in the skull with a trephine. Both ends of this tube are open, but into the upper is screwed another brass tube, the lower end of which is closed by a piece of very thin sheet of India rubber, and the upper end with a brass cap, into which is fastened a glass tube. This inner arrangement contains colored water, and to the glass tube a scale is affixed. This second brass tube is screwed into the first till the thin rubber presses upon the dura mater, and the level of the colored water stands at 0, which is in the middle of the scale. Now, when the animal goes to sleep, the liquid falls in the tube, showing that the cerebral pressure has been diminished, —an event which can only take place in consequence of a reduction in the quantity of blood circulating through the brain. As soon as the animal awakes, the liquid rises at once."

Dr. HAMMOND also had under his observation in 1854 a man who had lost, by a railroad accident, a very large portion of the vault of the cranium, but had recovered sufficiently to be employed as a wood-chopper. "When the man was awake, the region of scalp in question was always nearly on a level with the upper surface of the cranial bones. I [Dr. HAMMOND] also noticed on several occasions that during natural sleep the fissure was deeper, and that in the instant of awaking, the scalp covering it rose to a much higher level. After my attention was thus drawn to this subject, I observed that in young infants the portion of scalp covering the anterior fontanelle was always depressed during sleep, and elevated during wakefulness."

It seems to be his opinion (p. 110) that profound sleep is absolutely dreamless, there being then no mind, but that dreams (p. 146) are caused by an increased activity of the cerebral circulation. "This activity is probably sometimes local and at others general, and never equals that which prevails in the condition of wakefulness, when the functions of the brain are at their maximum of energy." Vivisection on the lower animals could scarcely be brought to bear on this point, but he supports it by the following observation in the case of the above-mentioned patient with the hiatus in his skull :

"Standing by his bedside one evening, just after he had gone to sleep, I observed the scalp slightly rise from the chasm in which it was deeply depressed. I was sure he was going to awake, but he did not, and very soon he became restless and agitated, while continuing to sleep. Presently he began to talk, and it was evident that he was dreaming. In a few minutes the scalp sank down to its ordinary level, when he was asleep, and he became quiet. I called his wife's attention to the circumstance, and desired her to observe this condition thereafter when he slept. She subsequently informed me that she could always tell when he was dreaming, from the appearance of the scalp."*

These observations on the state of the cranial circulation seem to us to be accurately made, and to be of practical value in the treatment of disease.

Similar experiments had been made by Mr. ARTHUR E. DURHAM (*Guy's Hospital Reports*, 1860), and are cited by Dr. HAMMOND. The details of the experiments are interesting, and incidentally throw some light upon the effect of anæsthetics upon the brain, which is of very considerable importance with regard to their therapeutic use in the varieties of convulsions, and suggesting the cause of fatal results from the inhalation of chloroform, which now numbers so many victims from its unnecessary and unpardonable use.

We will not here follow the author closely through his discussion of the physical phenomenon of sleep, the state of the mind during sleep, the physiology of dreams, morbid dreams and somnambulism, all of which subjects are treated of at some length, and dreams are narrated that possess an independent interest as works of the imagination. Many of the physical

* A similar case, quoted from *The Philosophy of Mystery*, London, 1841, said to have occurred in Montpellier, 1821, we have been unable to refer to, so that we have not examined its authenticity.

phenomena of sleep are explained by the fact that "the ganglionic nervous system and the spinal cord continue in action during sleep, though generally with somewhat diminished power and sensibility;" but beyond this, there is, "during sleep, a general torpor of the sensorium, which prevents the application of the ordinary excitations made upon the organs of the special senses. So far as the nerves themselves are concerned, there is no loss of their irritability or conducting power, and the impressions made upon them are, accordingly, perfectly well conveyed to the brain. The suspension of the operations of the senses is not, therefore, due to any loss of function in the optic nerve, the auditory nerve, the olfactory nerve, the gustatory nerve, or the cranial or spinal nerves concerned in the sense of touch, but solely to the inability of the brain to take cognizance of the impressions conveyed to it." He expresses very definitely his opinion on the state of the mind during sleep. The emotions have full play; the will is entirely suspended; "the imagination is active, and the memory may be exercised to a great extent; but the judgment, perception, conception, abstraction and reason are weakened, and sometimes altogether lost."

It seems to us that Dr. HAMMOND goes too far in his statement with regard to the will. In his discussion of that point, he says: "We do not will any actions when we are asleep. We *imagine* we do, and that is all." Now, it is not an uncommon occurrence that a man dreams that he is attacked, and in his dream desires and wills to strike a blow, and his bed-fellow receives the blow. In this case, to our mind, the causes of the desire and willing are imaginary, but the desire and the willing are real. Dr. HAMMOND seems to us to ascribe more than is due to the spinal cord in his endeavor to support the position that he has assumed. Thus, after quoting the opinion of CABANIS, that it is the will which, during sleep, directs, besides many other motions, "the action of the arm in seeking for the *vase de nuit*, which knows where to find it, and enables the individual to use it for several minutes, and to return it to its place without being awakened," our author says: "All these movements, and many others of a similar character, are entirely spinal, and are altogether independent of cerebral influence." We should be far from ascribing to the will alone all the complicated mental and nervous acts necessary to the performance above described, but it is certainly untenable that it is accomplished by spinal influence only. Just

as it is impossible to draw sharply limited lines in some questions relating to insanity, so it seems to us that the nature of the matters under discussion here will not permit us to take such decided ground, and that the statement relating to the will should be guarded, as is the statement relating to the judgment.

After reading these views upon the physiology of sleep, we are prepared for his theory of wakefulness, and its treatment by elevating the head and the cold douche, by warmth to the feet, by doses of bromide of potassium, etc.

We have endeavored to present the physiological basis upon which the work rests, and think that we have shown that it contains much valuable information that will well repay study, and that is independent of the dogma that the author has assumed as his stand-point.

We will just note, as an oddity in nomenclature, that a chapter is given to the consideration of somnolence, and the ensuing one treats of somnolentia, which is made to mean something quite different.

C. E. B.

MANUAL OF HYPODERMIC MEDICATION. By ROBERTS BARTHOLOW, A.M., M.D., Prof. of Materia Medica and Therapeutics in the Medical College of Ohio, etc. Philadelphia: J. B. Lippincott & Co., 1869. 12mo., pp. 150.

[For sale by the St. Louis Book and News Co.]

The want of a systematic treatise on the hypodermic method, in the English language, was certainly very great, and it is rather surprising that it was not filled sooner. We are not aware of the existence of any but the publication of Dr. RUPPNER (Boston, 1865), previous to the appearance of the excellent little manual now before us.

In view of the very great utility of this therapeutic method, and the desirability of its universal adoption (which has not yet been effected), it is a matter of congratulation that Dr. BARTHOLOW has given us the necessary information with due brevity. He says, in general, neither too much, nor yet too little.

The general part contains chapters on the history, the technical execution, and the general therapeutics of the hypodermic method; the last named chapter is a little meagre. The special part takes up, in the order of their probable importance, the

principal drugs concerning whose subcutaneous administration we have any experience, commencing with the most important of them all, morphia. We note with satisfaction that the author recommends the *sulphate* as the salt most proper for use, and in a weaker solution than commonly directed, viz.: two grains to the drachm (EULENBURG uses 4 grs., ANSTIE 5 grs. to the dr.). In this, as in all cases, proper attention is given to the matter of physiological action. Especially interesting is the comparison between the physiological actions of morphia, of atropia, and of the two combined, illustrated by diagrams of the temperature, respiration and pulse curves, observed in original experiments on these subjects.

The chapter on the actions and uses of morphia and atropia combined is of especial value. The dose recommended to be injected, in most cases, is one-fourth of a grain of morphia to one-ninety-sixth of a grain of atropia. The combination is used for several purposes, one of which is the injection of a large dose of morphia, "relying for immunity against ill effects upon the antagonism existing between them." The atropia increases the hypnotic and pain-relieving power of morphia; "the after-headache and confusion of mind are much less." "Upon the organic nervous system these agents seem exactly to antagonize each other"; the completeness with which the effects of the one are balanced by the other depends, of course, upon the ratio in which they are combined. The action on the pulse may thus be exactly neutralized, but "the antagonism between them does not extend to the respiratory function"; the two combined reduce the number of inspirations. "When administered together, they produce, almost immediately, intestinal movements, frequent borborygmi, and sometimes sharp pain, and the bowels are kept in a soluble state. The sickness and the nausea, and the not uncommon great depression of the vital power caused by morphia, are opposed by atropia." "They are antagonistic as to their effects on the kidneys and urinary excretion."

In regard to therapeutic action: in psychical disorders and other affections of the brain, "when power is deficient, the tendency being to depression, atropia should be combined with" morphia. "To procure sleep the combination . . . is to be preferred;" the atropia in a relatively small dose. "Neuralgias are best treated by the combined . . . solution." In sciatica, the author recommends one-twenty-fourth of a grain of atropia,

with one-half of a grain of morphia. The two agents combined are also recommended in angina pectoris and asthma, in diseases of the digestive apparatus, and of the urinary and genital organs, in rheumatism and myalgia, and for various purposes in connection with surgical cases and operations.

We have alluded to this chapter particularly for its novelty, and without the intention of a detailed review of the other chapters. The book is one which should be counted among the necessary furniture of a physician's office, and we take pleasure in recommending it as a most trustworthy guide.

The typography and paper are good and the size convenient. It is not free from typographical errors, however. One of them—"penicillum" for penicillium—undoubtedly is a congenital defect. We have not once met with the word spelled correctly.

G. B.

A TREATISE ON THE DISEASES AND SURGERY OF THE MOUTH, FAWES, AND ASSOCIATE PARTS. By JAMES E. GARRETSON, M.D., D.D.S., late Lecturer on Anatomy and Surgery in the Philadelphia School of Anatomy, etc. Illustrated with steel plates and numerous wood-cuts. Philadelphia: J. B. Lippincott & Co., 1869. 8vo., pp. 700. Price, \$6.50.

[For sale by the St. Louis Book and News Co.]

"Of making many books there is no end." The words of the ancient prophet come to us to-day more forcibly, if possible, than ever before. This, perhaps, is to be expected, when we realize that positive knowledge is becoming more extensive, that new facts in science are daily being enunciated, and that individual experiences are of value to others. But the merest tyro will tell us there are more books published than the times demand. How comparatively rare would be the issue of new works if authors waited only until they had something new and good to contribute to the general stock of knowledge. But it is not so, and thus our shelves are flooded. We are fain to believe that self-pride, self-glorification, self-advertisement, are the motives that prompt many to jump into print. With ambitious medical men this is more especially the case, and more especially necessary if they desire to make themselves known, for the profession is so restricted by ethics that the avenues to legitimate

advertising are few, one of which, however, is the method employed by our author—that of writing a book. This he certainly has done, if a closely printed octavo of seven hundred pages is proof thereof.

An attentive perusal of this work evidences that one-twentieth of its bulk would have contained all that is comparatively new, or what is not already known to the profession. Extracts enter copiously into the make-up, both in text and illustration; and while, doubtless, our author is a man of much practical experience as a dentist and as an operator about the oral region, and is therefore entitled to speak somewhat *ex cathedra* on these matters, still his theories and reasonings are mostly fallacious. It may be urged with a show of reason that he has done a commendable thing for the convenience of those whose libraries are limited, in thus bringing together much of the surgery of one of the most interesting portions of the body. It seems intended not exclusively for the dentist, nor yet for the physician, while the surgeon finds much appertaining to his department.

The work opens with several chapters—up to p. 87—on the anatomy of the mouth and face, illustrated with wood-cuts. The preface tells us “that the volume will be useful in assisting the student to prepare for the responsible duties of the profession, and a reliable guide to the intelligent practitioner.” Now, we might with propriety ask if both these classes would not have at hand GRAY’S text-book, where could be found not only the anatomy of our author, both more understandingly and more fully expressed, but also much that he does not, cannot give, and well illustrated, too. This part of the book, then, seems superfluous.

Next comes a long chapter on the “Associative Lesions of First Dentition,” which lesions, we are told, are—“1st, Localized Stomatitis; 2d, Irritative Fever; 3d, Diarrhœa; 4th, Spasms, and, 5th, Eruptions on the Skin.” What more? The author’s sheet-anchor in the treatment of these affections is the gum-lancet, which having been employed in conjunction with a certain amount of constitutional medication, and the affection, which ever one it may be, not improving, why, a mistake of diagnosis has been made, and we must look elsewhere than the mouth for the offense!

The fact is, the author had resolved to write a book on the mouth; so in that interesting field he finds cause for two-thirds

of the ailments incident to infancy. But did it never occur to him that about the period of dentition the child is changing the character of its food, and that certain organs are finding new offices, and that thus the body is rendered more susceptible to external impressions and to morbid conditions? The matter of dentition is an associate of the other synchronous changes rather than the cause of these "lesions" of the author.

Next come nine chapters of special interest to the dentist: "Anomalies of second Dentition," "The Teeth and their Diseases," "Alveolar Abscesses," "Trismus," "Caries," "Odonotalgia," "Salivary Calculus," "Denudation," "Extraction of Teeth." Then two chapters on "General Anæsthesia," occupying twenty-five pages. There is nothing new in them, and the author could have given his individual experience in two pages.

Our space will not allow of an extended notice of the remainder of the work. With the remark that extracts from different authors, especially the American and English, are copious, and that the steel engravings are all borrowed from other works, and recommending the book as containing, in a concise way, much that is known on the subjects, and noticing a copious index, which adds to its practical utility, we leave it.

The publishers have done it up in cloth, with good paper and clear type, the execution being of that usual excellent taste for which the house is noted.

A. J. S.

A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. By ALFRED VOGEL, M.D., Prof of Clin. Med. in the Univ. of Dorpat, Russia. Translated and edited by H. RAPHAEL, M.D., late House Surgeon to Bellevue Hosp., etc. From the 4th German edition. Ill. by 6 lith. plates. New York: D. Appleton & Co., 1870. 8vo., pp. 630.

[For sale by the St. Louis Book and News Co., 207 North Fourth Street.]

Another German medical treatise is here submitted to the American public. We think it deserves the same favorable reception at our hands which it has met with in Germany, where the medical press, through its generally commendatory criticisms, and the profession, as attested by the rapid exhaustion of three editions, have accorded it an honorable place in the literature

on the diseases of children. From our own text-books it is distinguished by that strictly methodical (and often pedantic) arrangement of its contents, which is a characteristic of German text-books, and the consequent completeness which allows of no omission or slight. In a practical respect, also, the book has its good points. The first part, especially, embracing chapters on the normal and pathological anatomy of the infantile organism, its growth, dentition, rules for the examination of children, and for the nursing and care of children, is likely to be an excellent guide to the young practitioner. The special part commences with a chapter on the diseases originating directly as results of the delivery, viz. : Asphyxia, Atelectasis, Cephalæmatoma, Diseases of the Navel, Trismus and Tetanus, Scleroma, Melæna, Icterus, and Conjunctivitis Blenorrhœica. This arrangement seems to us to be particularly judicious in a practical point of view.

The author has been reproached with inefficiency in therapeutics. We cannot find cause for this. True, it is the fashion to attribute to German practitioners nihilism, and the "facile method of expectancy." It were well for those who are fond of charging inefficiency of this sort against men of known scientific ability and conscientious practice, to try to abstain from medication where they cannot account for it by plain indications for interference, and experience how difficult this is. Yet this course should be the general rule of practice. But, in his book, the author is not always bound even by this rule, the correctness of which is self-evident. For example, after stating that the prognosis of trismus neonatorum is "extremely unfavorable," that *all* his patients died "under the best methods of treatment recommended," he relates that he gave tinct. opii (a preparation stronger than that of the U. S. Ph.), in one case one drop every hour, in another every twelve hours; in another he used chloroform every two hours. Finally, he recommends for trial, as most rational, artificial nutrition by injection into the stomach, and cauterizing the navel by the actual cautery. Here is "expectant treatment" for a new-born babe! Perhaps the constant adherence to practices which, though common, should be avoided, because detrimental, is the feature that called forth the objections. It is, to our mind, the best part of the author's performances. We need not quote instances, as the reader can find them on every other page.

The translation is from the 3d German edition, but supplemented by the author himself so as to correspond to the 4th and most recent. It is not, perhaps, above criticism, but still good enough for all practical purposes. There are plenty of Germanisms in it, apparent not so much in construction as in the rendering of terms, and this we must acknowledge to be difficult, though not impossible, to avoid. The book is excellently printed, and on very good paper.

G. B.

A COMPEND OF MATERIA MEDICA AND THERAPEUTICS. For the Use of Students. By JOHN C. RILEY, A.M., M.D., Prof. of Materia Medica and Therapeutics in the National Medical College, etc. Philadelphia: J. B. Lippincott & Co., 1869. 8vo., pp. 370. Price, \$3.00.

[For sale by the St. Louis Book and News Co., 207 North Fourth Street.]

Although the present modest volume aspires to no very elevated position in medical literature, and is expressly announced as "simply a compend," it is difficult to estimate what may prove its practical value, as it seems to stand just about on that doubtful line of conflict between brevity and utility. The condensing process could not have been carried farther without rendering it one of those baleful "cramming" volumes which are but skeletons without blood or life; but it is well executed. The modes of preparation, properties, and therapeutical uses and dose are described briefly, but clearly and pointedly, and whatever is given on these heads is well selected, well arranged, and generally reliable. In the arrangement, Dr. Wood's classification has been followed. The physiological properties of the remedies, however, are sadly neglected, and this is the only serious objection we have against the book. The very first article, treating of tannic acid, is a good example of this defect. *Why* this drug is an astringent, or what is its effect upon the tissues with which it is brought in contact, is nowhere apparent; nor does it appear on turning to the general remarks on astringents. These latter are defined as "those substances which, when applied to the living body, *corrugate and condense its fibres*, and at the same time indirectly exert a tonic influence"! Can anything be more obscure?

The work of Prof. RILEY is of course intended solely as a guide to the student while following a course of lectures, and as

such will prove useful and beneficial, provided it does not succeed in displacing other, more complete, works from the student's library, of which there is danger. The word "Therapeutics" in the title is, no doubt, placed there as an ornament, or appended only from the habit of association. G. B.

A MANUAL OF CLINICAL MEDICINE AND PHYSICAL DIAGNOSIS. By THOMAS HAWKES TANNER, M. D., F. L. S., etc. 3d Amer., from the 2d English ed., revised and enlarged by TILBURY FOX, M. D. Lond., etc. Philadelphia: Henry C. Lea, 1870. 16mo. pp. 366.

[For sale by Keith & Woods, Booksellers.]

"Little Tanner" has been out of print for some time, and as we have always liked the little book, we are glad to see it appear again after a process of reconstruction at the hands of so skilled an editor as Dr. Fox. More than 14 years had passed between the first and second editions, and naturally there was much to add; we need but mention the subjects of hypodermic medication, the laryngoscope, sphygmograph, clinical thermometer, the clinical use of electricity, etc. The necessary additions have been made by the editor with great ability and in the spirit of the original. Naturally, there was much to erase, also, from the old edition. This part of his task has not been performed so thoroughly. The editor illustrates how tenaciously words, once printed, cling to life; how difficult it is to retract an opinion once expressed in type; or, in brief, how difficult it is to make the second edition of a book (treating of a science as progressive and shifting as medicine) what it would have been, if it had been then first written. Thus, the reluctance with which the editor retained the table (p. 85) on "structural diseases" is very manifest; he is obliged even to caution the student against attaching much importance to it "beyond its *general* usefulness,"—which latter quality seems to us very problematical. We found many instances of this involuntary conservatism which would probably be absent from a work written at this day by Dr. Fox himself. With this exception, TANNER'S Manual has once more become a fit and convenient guide for the student in his hospital practice, and for the beginning practitioner.

The Code of Ethics, which was appended to the former American edition, has been, very properly, omitted. G. B.

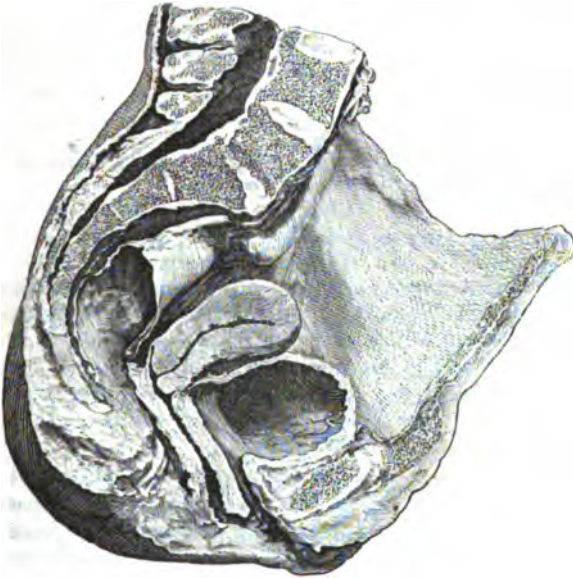
Extracts from Current Medical Literature.

ANATOMY AND PHYSIOLOGY.

1. *The Normal Position of the Female Pelvic Organs.* By Prof. A. BREISKY, Berne, Switzerland.

[*Journal Gynæcolog. Soc., Boston*, Aug., 1869, p. 83.]

The author transmits to the Gynæcological Society of Boston—a stereoscopic photograph, taken from a cut through the pelvic organs of a well-formed virgin, of about twenty years of age. The preparation was made after the method of KOHLRAUSCH, by myself, and



[Fig. 6—From *Jour. Gynæcol. Soc., Boston.*]

my friend and colleague, Prof. AEBY, of Berne, and is preserved in the collection of the Lying-in Hospital under my care. A preparation of this kind is with us exceedingly rare in collections, though it is the most common subject of drawings and wood-cuts, the accuracy of which, as is well known, usually leaves something still to be desired. The only pic-

ture taken from nature, with minute truthfulness, that I am aware of, has been published by KOHLRAUSCH.* We accepted the method of previously hardening the parts in alcohol, and cutting off from one side, piece by piece, as KOHLRAUSCH did. We preferred this procedure to the frozen cuts, from the fact that the slight lateral deviation of the normal pelvic organs does not allow one to get, by a single median incision, a sufficiently instructive view of all the parts concerned. The latter remark you will find confirmed by looking at the pictures taken from frozen cuts, in the famous and, in many respects, magnificent large work of PIROGOFF. In order to enable the Society to judge of the measurements, I mention herewith some of them :

Conjugata vera diameter of the pelvis	3 in , 4 1-3 lines.
" diagonalis	4 " 4 4-5 "
Antero-post. diameter at the outlet to the point of the coccyx.....	2 " 10 2-5 "
Antero post. diameter to the point of the sacrum.....	3 " 10 4-5 "
Length of Vagina (ant. wall).....	2 " 1 3-5 "
Length of entire Uterus.....	2 " 2 4-5 "
Length of Uterine Cavity.....	1 " 10 4-5 "
Length of Cervix Uteri.....	10 4-5 "
Length of Vaginal Portion, ant. lip	1 3-5 "
Length of Vaginal Portion, post lip	2 4-5 "
Diameter of the uterine wall at the point of incision :	
Fundus	4 2-5 "
Ant. wall.....	3 1-5 "
Post. wall.....	3 1-5 "
Diameter of the Perineum.....	1 in., 4 4-5 "

2. *The Large Intestine in Infancy.* By J. LEWIS SMITH, M.D., of New York.

[*New York Med. Journal*, Dec., 1869. p. 253.]

Since the large intestine is so frequently the seat of infantile diseases, I have from time to time, chiefly in 1866 and 1867, made careful *post mortem* examinations of this organ, in order to ascertain its distinctive anatomical characters in the first years of life, on which its peculiar liability to disease depends. The following facts have been derived from these examinations. The infants examined were between the ages of a few days and a little less than two years.

The coats of the large as of the small intestine are thinner and more delicate in the infant than in the adult, so as to allow a more ready transmission of light. When the intestine is laid open, the finger can be indistinctly seen through its walls. The tenuity is especially observed in the muscular and fibro-cellular coats. The diameter of the large intestine, and the depressions or irregularities upon its internal surface, are relatively less than in the adult. The comparative smoothness and uniformity of the internal surface doubtless facilitate the passage of fecal matter.

* O. KOHLRAUSCH: *Zur Anatomie und Physiologie der Becken Organe.* Leipsic, 1854.

Measurements.—The depth of the peritoneal reflexion, which constitutes the meso-colon and meso-rectum, varies in different parts of the tube. At the ilio-cæcal valve it is continuous with the mesentery, and of the same depth, so that the appendix vermiformis and lower end of the cæcum move freely. As we trace upward the ascending colon, the meso-colon gradually diminishes, and the intestine approaches the posterior abdominal wall, till at a point opposite the lower end of the right kidney, where it is nearly or quite absent. In eight out of twelve cases, I found the intestine adherent either to the lower end of the kidney, or to a point immediately below it; while in the remaining four the intestine was so little elevated that its movements in the abdomen were obviously very restricted.

Above the kidney, the depth of the meso-colon gradually increases to the transverse section, where, in twenty-five cases, I found it from 1 1-8 to 4 1-4 inches, with an average of 2 1-2 inches. The great depth of the meso-colon in the epigastrium allows the intestine to pass forward to the anterior abdominal wall. In the descending portion the meso-colon gradually diminishes till it reaches the point where it passes over the left kidney, where it is at its minimum as regards the last half of the large intestine. In three cases I found the intestine adherent at this point, and in nine separated by a space of a little less than one inch in the average.

Below the kidney the meso-colon increases, and at the sigmoid flexure, in twenty cases, its average depth was 2 inches, with a maximum of 4 1-2. Below the sigmoid flexure its depth again diminishes; nevertheless, the return to its termination is freely movable.

The average length of the small intestine, in eight cases, was 13 feet; of the large, in nineteen cases, 27.5 inches. The ratio of the former to the latter was, therefore, 5.6 to 1. In twelve cases, the length of the large intestine and the space occupied by it were ascertained. The average of the former was 26 inches; of the latter, 10.6 inches.

About one-third of the large intestine lies below the brim of the pelvis. In an average of thirteen cases, 9.25 inches were found below, and 18.57 inches above the brim. The importance of this fact is more apparent, when we consider the small size of the abdominal and pelvic cavities in the infant. In the case, which furnished the above measurements, the transverse diameter of the brim of the pelvis varied from 1 1-4 to 1 3-4 inches (the infants were under the age of eight months), the antero-posterior from 1 1-8 to 1 1-2 inches, while the distance from the anus to the promontory of the sacrum was from 1 3-4 to 2 1-4 inches. Evidently, therefore, in infancy, the large intestine not only fills that portion of the pelvic cavity which is not occupied by the pelvic viscera, but also—especially when the bladder is distended—the lower part of the abdomen.

Pathological Importance of these Anatomical Facts.—It is seen, from the above measurements, that the large intestine has nearly three times the length of the space which it occupies. This obviously necessitates its doubling on itself. Between the brim of the pelvis and the anus, where there are nine inches of intestine, although the distance from the

anus to the promontory of the sacrum is only two inches, these curvatures are such that they obviously retard, in a measure, the passage of fecal matter.

The pathological importance of this appears in infantile enterocolitis, in which the alvine evacuations are commonly acid and irritating, so as not infrequently to cause excoriation of the nates. The fecal matter retained in and immediately above the sigmoid flexure, in such cases, obviously intensifies the inflammation, and, accordingly, at the autopsies of such cases, we commonly find lesions which indicate a higher grade of inflammation in this part of the intestines than elsewhere.

The great length of the large intestine, as compared with the space, which it occupies, and its free mobility at points where there is considerable depth of its peritoneal attachments, are circumstances which are favorable to its displacement. Intussusception occurs much more frequently in infancy than in any other period of life, and in a large proportion of cases it commences either by a prolapse of the ilium through the ileo-cæcal valve, or an inversion of the caput coli. The thinness of the intestinal walls in the infant, and the attachment of the colon to the left kidney, are anatomical conditions, which are sufficient to account for the locality of the displacement, and the age at which it occurs.

Inguinal and femoral hernia, often congenital, are other diseases of displacement, which are common in infancy. I have made *post mortem* examinations of two congenital cases, and in both the large intestine was the part which had entered the hernial sac. The ovary sometimes descends into the sac, but, with the exception of this, both femoral and inguinal hernias in the infant are formed, in most instances, so far as I have been able to ascertain from published cases, by the large intestine, as in the two cases which I have examined. The omentum is not sufficiently developed in the infant to extend into the hernial sac. That the large intestine forms the hernial tumor is, indeed, apparent from the anatomical fact already stated, namely, that it lies immediately above the abdominal rings. In a case related to me, the appendix vermiformis, and the commencement of the cæcum, formed an inguinal hernia on the left side, and other cases are related, in which these parts were found in the sac on the right side.

The liability of infants to prolapse of the rectum is well known. This displacement is ordinarily due to tenesmus, which accompanies colitis, and that it is so common in infancy receives explanation in the facts stated above, namely, that the intestinal walls are thin, and therefore readily displaced, and the sigmoid flexure and rectum are more than four times longer than the distance from the brim of the pelvis to the anus, so that they are necessarily much bent upon themselves, and feebly supported by their peritoneal attachment.

A knowledge of the anatomy of that portion of the large intestine which lies below the brim of the pelvis is important, in reference to the introduction of instruments into the rectum. We are advised in some of the text-books, in the treatment of intussusception, to introduce the instrument, through which the injection or inflation is to be made, as far

as possible. The danger of any forcible introduction of instruments into the rectum is apparent, if we consider the thinness of the intestinal walls and the curvatures and angles occurring in this part of the intestine. In order to determine to what distance an instrument might be passed with safety, I introduced a rounded instrument, usually a No. 12 catheter, rendered firmer by a rod in its interior, or a closed enterotome, noting the point at which it was obstructed. Firm pressure caused, in most instances, penetration of the coats of the intestine.*

It is seen that a rounded and smooth instrument, corresponding in shape and form with those sometimes employed for the purpose of removing obstruction by inflation or injection, was arrested by the curvatures, and perforated the intestinal coats at a distance varying from one and a half to about six inches from the anus. The degree of pressure required to produce perforation was not great. Obviously the practical lesson is, in the treatment of intussusception, or other diseases which require the introduction of an instrument into the rectum of an infant, to introduce it slowly and cautiously beyond the distance of one and a half inches, and not to attempt to introduce it farther, if it meets with a firm resistance. A large, rounded, and slightly flexible instrument can obviously be introduced with more safety and to a greater distance than one of smaller diameter and not flexible. In the Nursery and Child's Hospital, recently, chronic entero-colitis has been treated in several instances by injections into the larger intestine, of nitrate of silver through a flexible tube, about one-third of an inch in diameter, introduced six inches or even a little farther into the rectum. The instrument is introduced very slowly, and no ill effect has thus far followed its use, except in one or two cases in which it caused a slight discharge of blood. Experiments show the danger which attends the employment of instruments injudiciously selected, or hastily and rashly employed.

3. *On Going to Sleep.* By CHARLES H. MOORE, F.R.C.S. Surgeon to the Middlesex Hospital.

[*Half-yearly Abstract Med. Sc.* July, 1869.]

In his highly interesting and valuable *brochure* "On going to Sleep," Mr. MOORE writes: "The mechanism of sleep appears to act thus upon the brain. Wakefulness opens the arteries, superseding the influence of the ganglia over them. If intense and prolonged, wakefulness perhaps exhausts the ganglia, but certainly leads to a loss of tone in the cerebral arteries, which throb and are distended beyond the power of contraction, though the brain be weary. No exercise of the brain therefore can put it to sleep. But subsidence of its powers to a degree short of extinction gives occasion to the exercise of another power, which is withheld during the energy of the brain from producing sleep. The first power, that of the brain, overwhelms the less, which is that of the ganglion. Let the

* We omit the table given in the original.—ED. ST. L. M. & S. J.

first moderate, the influence of the second rises. It is not necessary to conceive this latter as more than an automatic action, a resumption by the ganglion of its natural energy, which is forthwith expended upon the muscle with which it is connected. Be the brain therefore weary, or bewildered out of its attention, or soothed by a monotonous sound, or simply unoccupied, straightway the ganglia, set free for separate action, usurp supremacy, not over the brain, but over the arteries. The exact proportion of activity between the brain and the cervical ganglia which is requisite for setting the latter free is a matter of degree only, and is from the nature of the case undefinable, and possibly variable. But this indefiniteness, in fact, characterizes the subject. It is intelligible only as an exquisite balancing of uncertain forces, and too absolute a mind misses the fact of their relation in the shifting and vagueness of it. They sleep soonest who sleep the least. But with those to whom thinking is a necessity or a delight, how delicately poised sometimes is the alternative of sleeping and waking! The power seems to oscillate between mental willingness to withdraw from thought and some unknown faculty which we can neither localize, nor feel, nor woo, and the accession of which to its desired supremacy waits only for an instant when we give up the attempt to command it, the effort to yield to it, the feeling even to long for it; for all such occupation of mind, as it keeps the brain active, withholds from the blood vessels their ganglionic stimulus to contract. But any moment when the attention of the brain is unconcentrated, instantly the ganglia become uncontrolled and primary nervous centres, and reduce the size of the arteries.

"It may sometimes be that the arteries do not wholly contract at once, and that, indeed, usually the supervention of deepest sleep is not sudden. It is, doubtless, always so far gradual as to be due to the most thorough contraction of the arteries. Occasionally, the brain, while moderating its own activity, but still alive to any sensory discomfort, may be again aroused, and again supersede the ganglia. Thus, while sleep is doubtfully coming and going, there may be variations in the size of the arteries, corresponding with the alternate departures and returns of consciousness. But all lessening of the blood stream tends to reduce the capability of the brain for action, and gives an advantage to the ganglia which increases until the arteries are duly shrunken, and the sleep is complete.

"The mystery of going to sleep accordingly consists in the fact, that sleep obliterates the very faculties by which alone we might discover its nature. In the present state of existence we know ourselves through the body, and so long as we are possessed of the sensations and consciousness due to the body we are not asleep. During any temporary extinction of those faculties, all knowledge is interrupted, including even the manner of the interruption, since the faculties are abolished by a mechanism through which we neither feel nor think. The structures fulfilling this function even dispossess the will, acting themselves involuntarily whilst depriving the brain of its function. And they act imperceptibly, both because they are themselves devoid of prompt feeling, and also because in their action they abolish that sense through which we could be made

aware of the action. Such power, and still more that of annulling our consciousness in respect to thought, are surprising enough; but yet more so perhaps is the want of any direct relation between the mechanism which produces sleep and the influences which disturb it. The arteries being outside the brain, and the ganglia which rule them being in the neck, both are wholly indifferent to impressions which may be made on the organs of sense. Light and sound, for instance, reach only their appropriate organs, and do not affect cervical ganglia, or the arteries which keep the brain asleep. Hence it is that sleep, when profound, sometimes persists through great external disturbances, the mechanism of sleep being neither of a nature nor in a position to be in the least degree influenced by them."

MEDICAL PRACTICE AND THERAPEUTICS.

1. Cerebral Embolism. By ERLÉNMEYER.

[*Qu. Journ. Psychol. Med.*, July, 1869; from *Prager Vierteljahrschrift*.]

According to ERLÉNMEYER, the principal causes of cerebral emboli, in addition to divers affections of the circulatory organs such as atheroma, endocarditis, etc., are rheumatism, gout, syphilis, cancers, and puerperal phlebitis. The abuse of spiritous liquors is also a powerful cause; sex is without influence. The period of life between thirty and forty years furnishes the greatest number of cases. Symptoms: no prodromata; sudden loss of consciousness, with paralysis of various parts of the body. The facial and hypoglossal nerves, and the extremities, are almost always attacked; sensibility is abolished in the conjunctiva, while it remains intact in the cornea, the last fact being due to the influence of the sympathetic nerve. Pupils normal, reacting well. No symptoms of compression or of irritation of the brain. No vomiting, or contractions, or grinding of the teeth. The pulse is weak and small, the temperature rather below the normal standard. Sometimes there are epileptiform seizures, more severe in their character according as the extent of brain rendered anæmic is more considerable. Psychical troubles do not appear till late, when the collateral circulation, not being established, the cerebral substance begins to undergo degeneration or transformation. If, then, psychical troubles are due to a cicatricial transformation, or to the formation of cysts, a cure is not possible. The mental affection often assumes the form of general paralysis, from which it is not always easy to distinguish it. Lesions of the corpora striata and of the optic thalami are more apt to lead to this false paralysis.

The emboli may exist on both sides, in which case the resemblance to general paralysis is very striking.

2. *Case of Spinal Apoplexy.* By ROBERT JACKSON, M.D.,
Surgeon to the Notting-Hill Dispensary, etc.

[*Lancet*, Oct., 1869; p. 538.]

On Sunday, the 2d May, 1869, Miss E. L—, a bright, merry, healthy, and well-developed young lady, aged fourteen, arose as usual, but while dressing said that her "fingers felt weak." She, however, went to church both morning and evening, and seemed quite well.

On Monday she again got up as usual, but complained of the same "weak feeling" in her hands. Otherwise she felt very well; participated in the usual studies of the day; and in the evening had a warm bath, enjoyed it, and got into it "with the use of all her limbs."

On Tuesday she was much the same: ate a good breakfast, feeding herself, etc. During the forenoon, however, the weak feeling considerably increased, and I was sent for. I found her lying on her back in bed, quite merry, laughing, free from all pain, and rather amused than otherwise at her condition. She was, however, unable to shake hands with me, or to move her arms except at the wrists; and failed altogether to pick up a pin placed on a book before her.

On Wednesday there was no very material alteration. I observed, however, that the inter-costal muscles were not acting quite freely; she seemed, too, to lie *heavier* in her bed, and she evidently was more unable to turn herself round. There was also a moist crepitant râle over all the chest, with a little cough. The secretions continued free, and pulse regular; and she ate, being fed, a good dinner of roast beef.

On Thursday, Sir WILLIAM JENNER kindly saw her with me. Her general condition was not greatly altered; every sensation perfect; no anæsthesia; and she displayed her usual quick perception and intelligence. A careful examination, however, at this time clearly demonstrated a great and decided loss of power in all the voluntary muscles of respiration, and in those muscles of the arms, back and chest, supplied by the branches of the cervical nerves. The diaphragm, too, was becoming fixed, and there was slight lividity about the cheeks, with a fall in the natural temperature.

From these symptoms it became evident there was some serious spinal lesion, implicating, probably, and more particularly, the anterior branches of the cervical nerves and the origin of the phrenics.

Sir W. JENNER, therefore, diagnosed, and, as will be seen, with perfect accuracy, a clot in the cervical portion of the spinal cord, and he prognosed, notwithstanding the bright eye and still merry laugh, a speedy and fatal result. This took place thirty hours afterwards, without pain, without loss of consciousness or sensation, but only as the cessation of the power of respiration became more and more determined, with a desire to be raised "higher and higher."

In this interesting case a *post mortem* examination of the brain and spine was kindly allowed, and made forty hours after death. There was slight opacity of the dura mater in several places. Brain congested and soft. A softened spot and ill-defined clot in the cerebellum. The whole

cervical portion of the spine, but particularly anteriorly and to the left side, was imbedded in an oblong clot of dark venous blood outside the membranes. The whole length of the cervical portion of the canal and dura mater were deeply tinged by the color of the clot. The cervical nerves all passed through this effused blood, the intervertebral canals on both sides being filled with it. So soon as the seventh cervical vertebra was reached, the clot ceased, and the cord and canal assumed their normal condition and color. There was also a good deal of semi-clotted blood about the pons, and the nerves arising from it.

It is certainly a matter of much difficulty to account satisfactorily for this great effusion of venous blood in a subject so young, and so apparently healthy and robust. No outward cause could be assigned; there had been no blow or injury, no illness, no interrupted function; but living with kind and affectionate relatives, she enjoyed every comfort and happiness. It might have been assumed that so great a lesion, situated in so important and vital a position, would have given rise to more decided and graver symptoms from the beginning. The only probable explanation is, that the effusion took place very gradually, had room to extend itself, and coagulated slowly and imperfectly. Until the paralysis of the diaphragm, showing dangerous interference with the functions of the phrenic nerves, nearly every symptom might have been attributed to one or other of those obscure forms of hysteria so frequently met with in practice.

3. *The Treatment of Catarrh and Bronchitis.* Lecture by GEORGE JOHNSON, M.D., F.R.C.P., Prof of Med. in King's College, etc.

[*British Medical Journal*, Oct. 23, 1869, p. 433.]

An ordinary catarrh, although not a dangerous or a very serious disease, is yet, with many persons, an oft recurring malady, which occasions a great amount of discomfort and annoyance both to the patient and to his associates; and, as treatment has considerable influence upon the progress of the disorder, it is worth while to give the subject careful consideration.

The exciting cause of a catarrh, in a great majority of cases, is a chill, or some unknown atmospheric influence, which tends to suppress the action of the skin; and the most successful plan of treatment consists in the employment of means for restoring the free action of the skin. The popular domestic treatment consists in the use of a hot foot-bath at bedtime, a fire in the bed-room, a warm bed, and some hot drink taken after getting into bed, the diaphoretic action being assisted by an extra amount of bed-clothes. Complete immersion in a warm bath is more efficacious than a foot-bath; but the free action of the skin is much more certainly obtained by the influence of hot air—most surely and profusely, perhaps, by the Turkish bath. The Turkish bath, however, is not always to be had, and, even when available, its use in the treatment of catarrh is attended with some inconvenience. In particular, there is the risk of a too speedy

check to the perspiration after the patient leaves the bath. On the whole, the plan which combines in the greatest degree efficiency with universal applicability, consists in the use of a simple hot-air bath, which the patient can have in his own bed-room. All that is required is a spirit-lamp with a sufficiently large wick. Such lamps are made of tin, and sold by most surgical instrument makers.

The lamp should hold sufficient spirit to burn for half an hour. The patient sits undressed in a chair with the lamp between his feet, rather than under the chair. An attendant then takes two or three blankets and folds them round the patient from his neck to the floor, so as to enclose him and the lamp, the hot air from which passes freely round his body. In from a quarter to half an hour there is usually a free perspiration, which may be kept up for a time by getting into bed between hot blankets. I have myself gone into a hot-air bath suffering from headache, pain in the limbs, and other indications of a severe incipient catarrh, and in the course of half an hour I have been entirely and permanently freed from these symptoms by the action of the bath.

Another simple and efficient mode of exciting the action of the skin consists in wrapping the undressed patient in a sheet wrung out of warm water, then, over this, folding two or three blankets. The patient may remain thus "packed" for an hour or two, until free perspiration has been excited.

I may mention, in passing, that the hot-air bath and the wet packing are very useful in the treatment of many forms of disease. I constantly employ both in the treatment of renal disease; and not long since I believe that by the wet packing I saved the life of a lady, in whom very alarming symptoms were associated with the imperfect outcoming of the rash of scarlatina.

Now, to return to the treatment of catarrh, let me impress upon you that the sweating plan of treatment, to be successful in cutting short the disease, must be adopted early—I mean within a few hours from the commencement of the symptoms.

Another mode of treating catarrh, which is very successful with patients who are tolerant of opium, consists in giving a dose of opium, or morphia, at bed-time. Within half an hour after the opiate is taken, it frequently happens that the unpleasant coryza, and every other symptom of catarrh, have passed away. If the patient can avoid exposure on the following day, the cure may be complete, and there is no need to repeat the dose.

It is probable that the good effect of the opiate is partly due to its diaphoretic action, which may be increased by combining it with ipecacuanha; but, besides its action upon the skin, there must be some direct influence on the nerves and vessels of the inflamed mucous membrane to explain the speedy relief from discomfort which follows the opiate dose. The opiate treatment of catarrh is not so generally applicable as the sweating plan, for the reason that many persons are intolerant of opium, or they cannot take it without suffering from headache, nausea, and other distressing symptoms, which render it an undesirable remedy for them.

In any case the opiate treatment, like the diaphoretic method, is more successful in proportion as it is resorted to early in the attack.

In some persons, repeated doses of ammonia have the effect of lessening the coryza and other distressing catarrhal symptoms. Five grains of sesquicarbonate of ammonia, or a drachm of the aromatic spirit, may be taken in water every three hours. A single dose of ammonia at bed-time is an efficient and useful diaphoretic, its action being aided by external warmth. Some catarrhal patients experience great relief from an occasional dose of spirit of camphor. The usual dose is from ten to thirty drops in a wineglass of water. In ordinary catarrh, as a rule, no change of diet is required. A catarrh which has gone on unchecked for a few days is sometimes much mitigated by a generous diet and an extra glass of wine.

Those who are especially liable to catarrh should be careful to keep their feet warm and dry; and they should be warmly clothed, wearing woolen next the skin. They should avoid excessive wrapping up, since this, with even gentle exercise, tends to overheat the body, and so to increase the risk of a subsequent chill. The practice of wearing a hare-skin, wash-leather, or thick folds of flannel, over the chest, is to be condemned as at once filthy and unwholesome.

It may be well to remind catarrhal subjects that the nose is a natural respirator, so that, in passing from a hot room into the open air, if the mouth be kept closed, the air, in its passage through the nostrils, has its temperature raised before it enters the chest.

There is reason to believe that the daily use of a cold sponge-bath, or a shower-bath, has a wholesome hardening influence upon those who adopt it, and that it renders them less liable to attacks of catarrh.

Treatment of Acute Bronchitis.—Acute bronchitis is an exaggerated catarrh; the two diseases are essentially the same, and they require the same principle of treatment, only modified according to the character of the symptoms.

In the early stage of acute bronchitis, when the mucous membrane is dry and swollen, the hot-air bath or the wet packing may be employed once or oftener with advantage. Another very useful remedy in this stage is tartar emetic, in doses of one-sixth of a grain, combined with liquor ammoniæ acetatis. This mixture exerts a diaphoretic action both upon the skin and the mucous membrane of the air-passages; thus it brings on the stage of secretion, and with this a mitigation of the vascular engorgement. The patient should remain in bed, and the temperature of the room should be maintained at from 60° to 65°, the air being kept moist by steam from the spout of a kettle, or a special boiler on the fire. The inhalation of steam, repeated several times in the course of the day, is often very soothing and beneficial. Hot fomentations may be applied to the front and back of the chest by means of spongio-piline, or flannels covered with mackintosh. A mild mustard-poultice to the front of the chest is a good remedy for a sense of tightness and dyspnœa; but I advise you not to excite painful inflammation of the skin by mustard or turpentine, or by any other means.

When dyspnœa, with a feeling of tightness and oppression at the chest, is urgent and distressing, the application of a few leeches to the chest, or a moderate abstraction of blood by cupping, often affords prompt, decisive, and permanent relief. Venesection is very rarely required; though, in the case of a plethoric subject, suddenly seized with general capillary bronchitis, and threatened with death from apnœa, venesection may prove a life-saving remedy. Milk and beef-tea form the most suitable diet during this stage of the disease. Stimulants and opiates are to be avoided, as a rule, on account of their tendency to increase the congestion and dryness of the inflamed mucous membrane. In the second stage, when a free secretion has been established, antimony and acetate of ammonia are to be discontinued. At this period, a combination of sesquicarbonate of ammonia, with spirit of chloroform, is useful as a stimulating expectorant and antispasmodic. Brandy or wine in moderate quantities may now be required to sustain the strength. When, in the advanced stages, there is a profuse purulent secretion, with copious perspiration, the ammonia mixture may be replaced by one, each dose of which contains a grain of sulphate of quinine, two grains of sulphate of zinc, and twenty minims of aromatic sulphuric acid. This combination often checks very rapidly the excessive secretion from the bronchial mucous membrane. The stimulating expectorants are sometimes useful at this stage of the disease—I mean senega, squills, ammoniacum, and the compound tincture of benzoin. If, as sometimes happens, the stimulating expectorants suddenly check secretion, tighten the breath, and increase dyspnœa, their employment must at once be discontinued. When the secretions accumulate and threaten suffocation, the patient being blue, and cold, and drowsy, and the cough nearly or quite ceasing, an emetic of sulphate of zinc is often wonderfully efficacious in clearing the air-passages.

Here I must give you an especial warning with regard to opium. A patient who has been sitting up in bed, laboring for breath day and night, naturally craves for sleep, and begs for an opiate. Now, a small dose of opium given in such a case has caused fatal narcotism in numberless instances. The opiate stops the cough, and, of course, the expectoration; the patient sleeps more and more heavily; meanwhile the secretion accumulates, and causes fatal apnœa. Never, therefore, give an opiate to a bronchitic patient who has the slightest blueness of the lips. When the expectoration is quite free, and the lips are florid, you may sometimes venture to give a small opiate with antimony or ipecacuanha, or you may give a drachm of the compound tincture of camphor, or twenty minims of chlorodyne. The good effects of a few hours' sleep thus procured are sometimes very manifest.

When bronchitis is associated with blood-contamination, consequent on Bright's disease, diaphoretics, purgatives, and dry cupping over the loins, are amongst the most useful remedies.

The treatment of *chronic bronchitis* is essentially the same as that of the acute form of the disease. They merge into each other by imperceptible degrees. An acute attack may subside into a chronic condition, and exposure to cold will quickly convert chronic into acute bronchitis.

Amongst other remedies in the chronic stage, the inhalation of the vapor of creasote, or oil of turpentine, by means of a Nelson's inhaler, is often beneficial. These vapors facilitate expectoration at the same time that they tend to check the profuse purulent secretion. The abundant secretion may sometimes be checked by inhaling, in the form of spray, a solution of tannic acid.

In treating diseases of the air-passages by the inhalation of vapors, bear in mind that these vapors rapidly pass beyond the lungs: they are quickly absorbed and enter the circulation, causing, in some instances, headache and other discomforts. The necessary contamination of the blood by the inhalation of vapors renders this mode of medication less generally useful than it otherwise might be in the treatment of bronchial inflammation and catarrh.

Change of air, and, in particular, a residence in a mild, dry, and equable climate, are amongst the most important remedial and preventive measures.

4. *On the Diagnostic Value of the Corpuscular Blood-Elements in the Urine of Bright's Disease.* By JOSEPH G. RICHARDSON, M. D., Microscopist to the Pennsylvania Hospital.

[*American Journal Med. Sc.* Jan.. 1870, p. 54.]

Dr. RICHARDSON communicates an important means of diagnosis in renal disease, which is one of the practical results of COHNHEIM's discoveries as to the origin of pus. The same phenomena which C. observed in the cornea and mesentery, have already been shown to occur in the inflammatory processes in other organs also *; thus in the kidney

—by Prof. AXEL KEY, of Christiania, Sweden, who, in a paper partly translated for the columns of the *Medical Times and Gazette* for May 22d, 1869, p. 542, "On the Behavior of the White Blood Cells in Inflammation of the Kidneys and Lungs," informs us that by setting up inflammation of different grades in the kidneys, and at the same time throwing cinnabar injections into the blood, he was enabled to follow the white blood cells in these processes; he believes that even in slight irritation the white blood cells, without interstitial changes and without hæmorrhage, escape from the vessels into the renal glomeruli, and force their way into the tubes, sometimes one by one, and sometimes several together, and are found in the urine under the appearance of pus cells. Unlike COHNHEIM, he thinks it is an absurdity to consider the white blood cells as pus corpuscles under all circumstances as soon as they have left the

* In regard to erysipelas, by VOLKMANN, in Pitha and Billroth's *Handb. der Chirurgie*, I Bo. I Abth., p. 136, and plate.

walls of the vessels, and is of the opinion that he has found that the leucocytes may remain on the lining membrane of the tubules, and develop into epithelium. He further states: "In morbid changes in the kidneys, the cells which have migrated from the glomeruli and from the interstices into the tubes, and which resemble pus cells, may occur in great abundance in the urine, both isolated and forming whole cylinders, without the slightest trace of suppuration or actual pus formation being discoverable in the kidneys." These views in regard to the significance of pus (white blood) casts, contradictory as they are, not only to the opinions of older authorities on Bright's disease, for example GEORGE JOHNSON (*Diseases of the Kidneys*, p. 418), but also to those of recent writers, such as BEALE, DICKINSON and GRAINGER STEWART, nevertheless fully coincide with my own clinical observations, as will be seen in the sequel.

Dr. RICHARDSON then describes the different degrees of the process as it occurs in nephritic affections, classifying the cases into three grades. The first departure from a state of perfect health may originate in the mere mechanical effect of a foreign body, etc.

—This produces a partial or complete stasis of the blood in the neighboring vessels, whose first or least amount results in the migration of a few leucocytes and the exudation of liquor sanguinis, which, mingling with the urine, renders that fluid slightly albuminous; the second or medium degree in the formation of tube casts called fibrinous (sometimes it appears to me on insufficient evidence), and the abundant "wandering out" of the white (accompanied by a few red) blood cells through their power of amoeboid movement, as described by COHNHEIM, and well known to occur in inflammation of mucous membranes analogous to that lining the uriniferous tubules; lastly, when of its third or highest intensity, in the free escape of the red blood disks in addition to the other elements alluded to, either *per rhexin* or by their peculiar mode of exudation through the walls of the minute capillaries.

As examples of the first of these occurring in other tissues of the human organism may be instanced the anasarca produced by an abdominal tumor obstructing the reflux of blood through the vena cava, the œdema of the eyelids in the forming stage of hordeolum, and the flow of transparent serous fluid during the early period of an ordinary cold in the head.* The second is illustrated by the secretion of pus in acute cystitis, or its development in an ordinary phlegmon; and the third finds its analogue in the mingled pus and blood discharged from the mucous membranes during the height of an attack of gonorrhœa, and rarely of virulent ophthalmia.

* Dr. DICKINSON quotes (*Pathology and Treatment of Albuminuria*, p. 15,) Dr. GEO. ROBINSON of London, as having proved experimentally on animals that albuminuria resulted from ligature of the renal vein, and Dr. GRAINGER STEWART (*Bright's Diseases of the Kidneys*, p. 33,) has confirmed this statement by his own observations.

By microscopic observations, for which detailed instructions are given, the author ascertains the number of red and white blood cells in the urine, and their relative ratio. It is necessary, of course, to know whether the corpuscular elements found in the urine are derived from the kidneys or from the urinary passages; the means of distinguishing between these sources are therefore alluded to *in extenso*, whereupon the author continues:

Supposing now that by the assistance of any or all of these indications we have been able to eliminate vesical irritation as a cause of the presence of blood-elements in the urine, it remains to be seen how far the actual number and relative proportions of the red and white corpuscles serve to point out the past, present, and future of the renal affection.

First. When the red blood globules very largely exceed the white in number, approximating to the proportion in normal blood, it is probable, as intimated above, that rupture of some small vessels has taken place, and the flow of blood is a true hæmorrhage from the kidney, which may be produced by blows across the loins or lacerations caused by angular calculi. This opinion will be further strengthened if a thorough search fails to reveal any tube-casts, and if the albumen as coagulated by heat and nitric acid is no more than should exist in an amount of liquor sanguinis corresponding to the bulk of deposit formed of cell walls from the red disks.

Second. When in Bright's disease the white blood corpuscles are mingled with red disks in a proportion exceeding one twenty-fifth of the latter, my observations lead me to conclude that generally the patient is suffering from an acute or subacute inflammation of one or both kidneys, and attended with danger therefrom more or less serious, according as the amount of corpuscular elements shows by its absolute quantity that a larger or smaller portion of the kidney is inflamed. If the albuminous coagulum produced by heat and nitric acid occupies more than one-half the fluid tested, and many times exceeds that which would be furnished by the liquor sanguinis corresponding to the blood corpuscles, an extensive inflammatory disease probably exists, unless careful microscopic scrutiny shows decided fatty degeneration (and consequent loss of secretive power) in the epithelium of the uriniferous tubules. . . .

Lastly, should we discover on examination that the white blood cells (hitherto designated as "mucous corpuscles," "exudation corpuscles," and by Dr. BEALE "cells closely resembling pus corpuscles"—*Microscope in Practical Medicine*, p. 219) pass off from the kidneys with little or no admixture of the red disks, we may conclude that a chronic inflammation of the organs exists less or more extensive as the number of the leucocytes is smaller or greater and as the amount of fatty degeneration, estimated as above suggested, is serious or otherwise; for my researches tend to show that the one cause of albumen in the urine varies inversely as the other; that is, if in a given case of Bright's disease the urine containing say one-fourth of its bulk of coagulated albumen after boiling, shows

many white blood corpuscles with epithelial cells only slightly fatty; and another specimen of the same, collected perhaps two months afterwards, exhibits with the same amount of albumen few leucocytes but epithelium containing large oil globules, we may conclude that (following Dr. GRAINGER STEWART in his classification on the basis of VIRCHOW'S), we have to deal with the First or Inflammatory form (involving a large portion of the organs), which has passed from stage *a*, that of Inflammation, to stage *b*, that of Fatty Transformation; many cases, however, seem to run a much more favorable course, the pus corpuscles diminishing in number without any corresponding advance towards fatty degeneration in the epithelial lining of the tubules, so that the albumen slowly decreases in quantity, and the patient regains at least a comfortable state of health. . . .

Recapitulating now the conclusions above reached, it will be seen that while red and white corpuscles occurring as described in the urine, in their normal proportion point to renal hæmorrhage, and the same elements, when more nearly equal in number, indicate an acute or subacute nephritis, the existence of white blood cells (pus, mucous, or exudation corpuscles) generally shows a chronic, or, at least, less active inflammatory condition of the kidneys; further, that a series of comparative examinations performed with the precautions above detailed, at intervals of a few days, affords an important guide to the effect of treatment, and to the progress of the disease; and, therefore, it may be, I think, safely asserted that due regard being paid to the general symptoms, and the occurrence of albumen and tube casts in Bright's disease, we can, by a careful study of the corpuscular blood elements, as seen in the urine, diagnosticate the form and stage of the renal affection with much more accuracy than it has heretofore been customary to do.

5. *Treatment of Rheumatic Fever by Perchloride of Iron*,
By J. RUSSELL REYNOLDS, M.D., F.R.S., London.

[*British Medical Journal*. Aug. 28, 1869, p. 247.]

The marked effects of tincture of perchloride of iron in such diseases as erysipelas and diphtheroid sore throat had induced Dr. REYNOLDS to try it in acute rheumatism—which agreed with the others in coming under the class of “spreading” inflammatory affections. He had given it in eight cases, with such success as would justify a further trial. Having given brief histories of the eight cases, he directed attention to certain points: 1. The relief of the joint affections was definite, uniform and speedy. In four cases it was removed in one day; and the longest period of suffering after the commencement of the treatment was five days. 2. Excluding one fatal case with cerebral symptoms, and another where there was intercurrent pneumonia, the temperature became normal between the second and the seventh days; the mean duration of pyrexia being a little less than five days and a half. 3. Excluding again the two exceptional cases already mentioned, the total duration of rheumatic

fever from the outset varied from seven to fifteen days, giving a mean of ten and a half days. 4. The earlier the iron was given, the shorter was the duration of the disease. No headache or other symptom of discomfort was produced by the iron.

DISEASES OF CHILDREN.

1. *Prevention and Treatment of the Diarrhœal Diseases of Infants.* Remarks made before the Obstetrical Section of the N. Y. Academy of Medicine, by STEPHEN ROGERS, M.D., N. Y.

[*Medical Record*, June 15, 1869.]

In no department of medicine is vagueness of aim, uncertainty of result, and consequently tentative practice, more conspicuous, and I may add more disastrous, than in diseases of infants, and especially diarrhœal diseases. We lose our aim first by forgetting, or by never knowing, the anatomy and physiology of the infant; and we are forthwith environed by complications and inexplicable phenomena which befog every effort we make.

The digestive apparatus of the infant is, in some respects, like that of the carnivorous animals, arranged for highly animalized and easily assimilable food. This alone should teach us that the farinaceous and vegetable substances should not enter the diet of young infants. Infants, like animals and like adults, require water; and while their proper food, milk, contains all the water usually demanded, any accident or disease which cuts off the accustomed supply of milk, as well as any circumstance which greatly increases perspiration, such as warm weather, is certain to induce thirst, for which water is the true remedy. The infant intestines, like the adult, are provided with a reservoir for the reception, detention, and absorption of the assimilable fluids. This organ is the *large intestine*, or *colon and cæcum* and the rectum included, and has not, like the stomach, and a considerable part of the small intestine, any digestive function. No part of it, therefore, can perform digestion, from the anus to the caput coli; it can only absorb; and substances which are simply in suspension, not in solution, are not appropriated when introduced into this portion of the intestine. Substances, in short, which are not transmitted through membranes by osmosis are not utilized by the rectum or colon. As an absorbing organ, however, the large intestine is very active. There can be no doubt, I think, that the digestive portions of the intestinal tube of the infant, as well as the absorbing portions, are liable to the same diseases that affect them in the adult; and as diarrhœa is one of the results of disease in both portions, in both adults and infants, we will make our classification upon this understanding. Commencing with

the stomach, I will say that diarrhœa *from indigestion* is, perhaps, quite as frequent, if not much more so, in infancy as in adult age. It is very liable to occur in warm weather, to infants both breast and bottle-fed, on account of their taking more milk than the stomach can dispose of, and more than the system requires, the child taking it for thirst instead of for hunger. It is also liable to occur in children bottle-fed on milk too much diluted, the digestive action of the gastric fluids suffering embarrassment by the very great amount of fluid, to say nothing of the grave derangements of the digestive organs which are produced by insufficiency of nutritive material given in such habitually dilute food. The slow starvation produced by insufficient diet, and by diet which, though sufficient as to quantity, is unsuited as to quality, has many symptoms in common with much of the fatal infantile diarrhœa. This diarrhœa of indigestion is usually ushered in by more or less sudden anorexia, vomiting, thirst, nervous disturbance, and heat of skin, followed in a few hours by diarrhœal discharges, containing more or less undigested food. Unless the cause is repeated, the attack generally subsides with the expulsion of the offending material. It is therefore an exceedingly easy disorder to treat in both the young and old. The treatment, as a rule, need be nothing else than *physiological* and *physical* rest. This is attained by withholding food—a practice readily followed, for the patient does not desire food—quieting thirst by cold water without stint or measure,* keeping the patient still, and finally, when desire for food may return, to allow it in moderate amounts, and if it be milk, *undiluted*.

In bottle-fed babies whose milk has been diluted in the usual manner, from one-half to three-fourths water, nothing can be more striking than the change to undiluted milkman's milk, except, perhaps, when the dilution has been with barley, or other farinaceous decoction. Of all the compounds fruitful of infantile diarrhœa, in our city especially, those of farinaceous decoctions with milk rank first.

Children over six months often desire, and are benefitted apparently by farinaceous food occasionally, but the child should be allowed its choice to take it or not. This cannot be done by mixing it with its milk. All such articles should be given by themselves. The observation of these few plain rules for the treatment of the diarrhœa of indigestion will be quite sufficient for most cases, medicinal aid being generally unnecessary. To avoid these attacks of diarrhœa of indigestion during our summers, every mother or nurse should be instructed to offer cold water to the infant, whether breast or bottle-fed, before offering it its food, for by so doing the infant has the opportunity to quench its thirst with water.

* I am ready to stake my reputation as an observer, student of nature and practitioner, upon the declaration that there is no support in physiology, nor in pathology, nor in practice, for the popular and extensive professional idea that water, to satisfy thirst, can do any infant harm. The idea that it distends the stomach, that it weakens the organ and prevents digestion, no matter when given, is all clap-trap, without a shadow of foundation in truth. This is a very mild term to use relating to these fostered ideas, if we take into account the untold misery, and even mortality, they annually produce in the diseases of the *prima via* of infants.

preserving the unembarrassed energies of the stomach for the digestion of the food.*

Following the intestinal disturbance produced by an attack of diarrhœa of indigestion, the annexed train of symptoms are very often met with :

Frequent alvine dejections of greenish, very fluid, and fœtid character, frequently containing portions of undigested casein coagulum—if its diet include milk—irritable stomach and variable appetite, and almost continual thirst. Its discharges may be yellowish, fœtid, and watery when voided, but become green after a little exposure, generally containing mucus; and there is usually some tenesmus. The child does not have very marked fever, except at varying intervals, emaciation progresses more or less rapidly, and the tongue, as well as the anus, indicate by their redness, enlarged papilæ, and excoriation, a profound disturbance of the alimentary canal.

The case is one of chronic *colitis, the usual diarrhœa of infancy*. The colon, as a receiving and absorbing cavity for the excrementitious and alimentary matter poured into it by the small intestine, and by its own excretory glands, refuses to perform its functions; consequently, as fast as material is lodged in it from above, it is hurried on through to the rectum and discharged, not only adding to its own irritability, but not permitting the absorption of much of the alimentary matter provided for it in the canal higher up. During the transit of a fresh supply of such material through the diseased colon, the child often has an intense febrile heat of skin, and not unfrequently convulsions, which terminate life. Both the fact that the morbid changes found after death from diarrhœa in infancy are chiefly in the large intestine, and the phenomena of the disease, show conclusively that it is a *colitis* almost exclusively.

When we add to these evidences the results of the *treatment* of colitis, I see no room for a doubt that the usual diarrhœa of infancy, of which so many children die among us annually, is simply colitis. The treatment is clearly to avoid the causes which set up this inflammation, and to lessen the already existing inflammation and irritability. This is accomplished by withholding food as much as possible, keeping the desire for drink satisfied with water, and thus securing physiological rest for the colon. This rest may be more completely effected by calming its pain and irritability by means of anodynes thrown over part of its surface, viz., the rectum. But in this use of anodynes we should never forget that neither the rectum, nor any other part of the large intestine, can digest; that its function is to absorb, and, therefore, nothing should be introduced into it except solutions, or substances easily soluble in water, and therefore, in the moisture of the mucous membrane. Nothing but evil can come from introducing the time-honored *starch, gum-water, mucilage* of various

* Much favorable testimony has been furnished the profession relating to the employment of pepsin in the diarrhœa of indigestion of children and infants. I have not met with cases in which a resort to this agent became necessary, and can therefore offer no experience with it. But as the principle upon which its use is based has a well-known physiological foundation, I am decidedly disposed to adopt it in cases which are not promptly controlled by proper physiological feeding.

kinds, oil, albumen, etc., into a diseased and irritable colon or rectum. The watery portions of these preparations are alone absorbed, if retained long enough, and the solid residue is left behind, doing much more harm than good, and oftener more harm than the combined anodyne does good. The idea that in some forms of inflammatory disease of the large intestine, its usual lubricating covering of mucus is absent, and any of the gummy or mucilaginous substances may in such case be introduced with advantage as a simple protection of the denuded tissue of the mucous membrane, is, to my mind, totally destitute of the support, not only of demonstration, but of probability; and so far as my individual experience may permit me to judge, has not practical support either. Poultices applied to the mucous membrane of the rectum, no matter of what bland substance they be composed, are foreign and excrementitious, and give no rest to the bowel.

Alcoholic solutions, unless largely diluted with water, are liable to irritate, and therefore objectionable. Watery solutions, which leave no solid residuum, are clearly the most preferable, and of all preparations, the morphine salts in solution I think best. Where there is not very great irritability of the rectum, the much-used cocoa-butter suppository is a convenient and useful form of introducing the morphine, or other very soluble substances. The warmth of the bowel slowly melts down the mass, allowing the salt to come in contact with the bowel whose moisture dissolves it, and it is then absorbed, while the butter remains as excrement. But the simple watery solution of sulphate of morphine is the least irritating as well as the most active form of anodyne enema. Its dose by the rectum when thus introduced is rather less than by the mouth, and its action is more prompt and more effective to relieve tenesmus and irritability of the large bowel. I have often seen a single injection prevent all movement of the bowels for ten to twelve hours, in cases where the movements before it were almost incessant. Many adjuncts to this treatment will suggest themselves to any educated physician, and I therefore need not mention them here. I will add, however, that I rarely employ any other medication for the diarrhœa of infancy of this degree; and, so far as my observation enables me to judge, much of the favorable results claimed by our practitioners for their favorite prescriptions, such as minute doses of calomel, Dover's powder, ipecac, the sulphite salts, the bromine salts, and the various astringents, alkalies, and anodynes and disinfectants, is due to the coincident modification of the diet and care of the child. A diarrhœa, like that just described, of no great severity, having existed for some days, perhaps, suddenly suffers a great increase in the frequency of the movements of the bowels, nausea and vomiting come on, the skin becomes hot, the thirst is urgent, there is more or less extreme restlessness and actual or threatened convulsions. The dejections are, if possible, still more fetid, watery, and of various colors from black to yellow; they are often streaked or dotted with blood, and the fluid portions sometimes stain reddish the clothes upon which they fall; there is sooner or later mucus intermingled with them, the tenesmus becomes tormenting, the anus red and excoriated, and the tume-

fied mucous membrane of the rectum shows a tendency to descend. This has now become *acute colitis, inflammatory diarrhœa* of some authors, or *dysentery* of others. Its treatment does not differ from that already mentioned for colitis, except that it must be conducted with greater energy and watchfulness.

Withhold food as strictly as possible, give cold water *ad libitum*, arrest the pain and irritability of colon by morphine injections, and keep the patient as quiet and cool as practicable, for this is a disease of hot weather.

The use of pure cold water in the irritable stomach of infantile diarrhœa, is theoretically opposed by many practitioners, on the ground that it keeps up the vomiting, as they allege, and furnishes indefinite quantities of fluid to protract the diarrhœal discharges. Practically, I have never seen this theory supported, unless the water were combined with some alimentary substance. It is surprising, however, to see how little milk, or arrowroot, or barley, or any similar substance, combined with water, will keep the vomiting and diarrhœa going on to a fatal issue. Pure cold water, on the contrary, will soon arrest vomiting, will give physiological rest to the stomach and intestines, will furnish the much needed fluid to the blood, and thereby calm nervous agitation and afford physical rest and restoration.

As to the treatment of the prolapsus of the mucous membrane of the rectum which we occasionally see follow one of these attacks of colitis, I will add that I have found nothing of any service which does not arrest the irritability of the part, and the frequent movements of the bowels which attend it. Any agent which secures prolonged repose of the colon and rectum, will cure this condition. The most certain means which I have employed is an injection of the solution of morphine, thrown up immediately after reducing the prolapsed membrane by a cold-water compress, and putting the patient to bed. The bowels do not move for twelve to forty-eight hours, and recovery of tone and natural condition progresses rapidly. A single application of this kind is generally sufficient, and I have seen very few resist more than two or three. There is still another form of most fatal diarrhœal disease of infancy, presenting the following train of symptoms: A mild form of diarrhœa having generally existed for a few days, there suddenly come on vomiting and purging of a copious watery substance, at first containing feculent material, but subsequently an almost pure, opalescent, and nearly odorless fluid, without apparent pain or tenesmus. There is total loss of appetite, great thirst, the surface of the body rapidly becomes cold, the skin shrivelled and moist; in short, a more or less rapid collapse ensues, which, as a rule, terminates in fatal convulsions, or anæmic coma, and does so generally within twenty-four hours after the attack. This is the form of diarrhœa, and the only form, in my opinion, to which we should apply the name *Cholera infantum*, and when compared with all the cases of diarrhœal diseases we see, I think the Fellows of the Academy will agree with me in saying, that it composes a small minority of them.

I have no suggestions for its treatment that would not occur to the mind of any physician.

Unquestionably the wisest plan in this, as well as in all the diarrhœal diseases of infancy, is to prevent them if possible. This we may do much to achieve by management of the food. While there is too much evidence to permit us to doubt that, if not a *cause*, dentition at least *attends* a period of development of the digestive apparatus of the infant, during which it is liable to diarrhœal disease, we can not close our eyes to the fact that very large numbers of our infants die before dentition or any such development commences, before six months, and die of diarrhœal disease. Any extended remarks upon the subject of the diet of infants here I deem uncalled for, and I therefore shall say but little. We, however, all accept the proposition as self-evident, that the best food for the infant is good breast-milk. We are all quite as thoroughly convinced that this is very often not obtainable. Now comes the question as to what is the best substitute for breast-milk. That the milk of some animal should compose the basis of the substitute all, with few insane exceptions, agree. Great numbers of modifications of the milk of the cow—the only available one in this part of the world—have been advocated, chiefly in the degree of its dilution, and the addition of various farinaceous substances. But my observations have most thoroughly convinced me that the theoretical dilution of cow's milk with the view of rendering it similar to the milk of the human female, is an unscientific delusion. It is founded, in the first place, upon the false premises that our Croton, or other water, is a similar fluid to the watery portions of human milk. It still further supports itself upon the unfounded assumption, that diluted milk of the cow is more easily digested than the original fluid, on account of the excessive proportion of casein.

There is no means of demonstrating the theory that the addition of water to the milk of the cow renders it more digestible in the infant stomach. But, on the contrary, any one can demonstrate almost any day during our summers, that the labor of the infant stomach is much easier in the digestion of the best milkman's milk we can obtain here, than it is in the digestion of the usual dilute form, and still less than when diluted with farinaceous decoctions. Providence has wisely arranged this matter, so that if the milk—the food intended for the infant—be variable as to its constituents, the stomach has the power to digest and more or less completely appropriate them. Hence the milk of the human female, which is often richer in all of its constituents than many samples of the milk of the cow, is digested, and the child flourishes: and, on the contrary, the milk of the cow, which possesses many per cent. more of oil and casein than the average human milk, is easily digested, and the child thrives satisfactorily. The essential points in the whole matter being, that the milk given contain nutrient material within a reasonable bulk, sufficient for the nutrition of the child, and that it be given soon enough after leaving the breast or udder to be sweet and good. I avail myself of this opportunity, as I uniformly do of any which presents itself, to denounce the doctrine of dilute cow's milk as infant food, as one destitute of reason and extremely dangerous. If this be true of milk simply diluted, what must be the state of the case when diluted with vegetable and farin-

aceous substances? For about ten years of my professional life I have watched this subject closely, having had several children of my own to raise on the milk of the cow. I have yet seen no reason for diluting the milk sold in this city, to make it fit food for the infant at any age. On the contrary, I have often found a necessity for richer milk than could well be obtained here. My experience has satisfied me that a great part of the difficulty and danger attending the raising of children by hand, as it is called, proceeds from this tinkering of the milk used. I regard the raising of a child with a tolerably good organization as about as easy on the milk of the cow as on the breast. The essential points for the mother or nurse to observe are, that the milk be sweet, that is to say, not soured; that it be warmed to about 100°; that it be taken from the bottle through finely perforated nipples; that the bottle and nipple be kept clean; and finally, *that the child have all it will take*. And here I would repeat the precaution before alluded to, not to give the child milk during the very warm weather of our summers till water has first been offered to it, else it will often take milk in inordinate quantities simply because it is thirsty, and will thus be overfed and injured. Children at the breast are often injured by this neglect.

2. *On Sleeplessness in Infants*. By EUSTACE SMITH, M.D., M.R.C.P., Physician Extraordinary to H. M. the King of the Belgians, etc.

[*Brit. Med. Journal*, Aug. 28, 1869, p. 235.]

It often happens that infants, apparently in good health, are seized with wakefulness at night. The child will not sleep; he is uneasy, restless, peevish, breaks out into violent fits of crying, and is with difficulty pacified, even when hushed in his mother's arms. For this condition, numerous specifics have been recommended, ranging from "soothing syrups" to bromide of potassium. In almost all cases, however, careful inquiry will discover some special cause to which this nocturnal restlessness of the infant may be referred, the removal of which is followed by the disappearance of the troublesome symptom under consideration.

All acute diseases in the child are accompanied by more or less restlessness at night, and fever; but in these cases, unusual irritability of the infant during the day, and other symptoms pointing unmistakably to some derangement of health, will have been observed. It is when the child is, to all appearance, in good health, or when, at any rate, no symptoms of functional derangement have been noticed during the day, that sleeplessness at night becomes a condition often as puzzling to the medical practitioner, as it is distressing to those in immediate attendance upon the infant.

If the infant be very young, *hunger* is commonly the cause to which his restlessness is attributed by the mother; for the tendency of mothers is to refer all crying in their infants to that one cause. Occasionally they may be right. Infants nourished solely by the breast, and deriving their

entire support from a scanty supply of watery milk, are almost constantly hungry. The amount of fluid they swallow is scarcely sufficient to satisfy their appetite even for the time; and, being rapidly digested, the meal is soon followed by renewed demands for nourishment. After a few days of such a diet, the weakly condition of the infant, induced by semi-starvation, draws attention to his state of health; but crying at night from hunger is an invariable forerunner of his loss of flesh.

The milk may be considered to be scanty when the infant constantly requires the breast, and sucks with very great effort. A hungry infant will suck at any thing within reach of his lips. At night he is excessively peevish, but during the day he often lies quietly with one or both thumbs in his mouth, sucking at them until the skin is raw. At sight of the breast, he shews his desire for food by clenching his hands and flexing his limbs, and his cries usually cease at once. A child crying from griping pains manifest little interest at sight of the breast, and is often with difficulty persuaded to take the nipple into his mouth.

When the milk is scanty, it is always of very inferior quality, but very abundant milk may be also very poor and watery. In this case the infant, instead of being peevish, is exceedingly drowsy, sleeping almost all day as well as at night, and occasionally falling asleep even while in the act of taking the breast, holding the nipple still in his mouth. When this occurs, suspicions of serous milk should always be excited.

By far the most common cause of restlessness at night is *injudicious feeding*, the child being stuffed with food, which, although not necessarily in itself injurious, is yet ill-adapted to the nourishment of the particular infant to whom it is given. It is a common practice amongst mothers—especially those of the poorer classes—to make up for any deficiency in the amount of breast-milk by farinaceous food, long before the digestive power of the child is suited to such a diet. The stomach of an infant of about two months old is thus often filled with a mass of starchy matters, which the absence of saliva will not permit him to digest. This mass, fermenting in his bowels, is a source of continual discomfort until it is evacuated. Even when cow's milk is used as an addition to the breast-milk, it is very frequently ill-digested, although diluted with water. The clot formed by the coagulation of cow's milk is particularly firm and solid, and differs very much in that respect from the clot of human milk, which is exceedingly light and flocculent. In very young infants, therefore, and in older infants of delicate stomachs, the digestive juices can make little impression upon the mass of curd. Feeding so conducted cannot be continued for long together, without producing very evident signs that the nutrition of the body is no longer efficiently maintained. The child, deriving very little nourishment from the food, which, however, he eagerly swallows, will soon begin to waste, in spite of his voracity. But before nutrition has become impaired so decidedly as to produce emaciation, certain symptoms are noticed shewing the uneasiness of the digestive organs; and one of the earliest of these signs is restlessness at night. The child starts out of his sleep crying violently. His skin is hot, his belly tense, his upper lip livid and drawn

up at the corners; and the griping pains from which he is suffering are shewn by the violent contortions of his body, and the uneasy, jerking movements of his limbs. Even when taken up into the arms of his mother he is not pacified, but breaks out into piercing cries, which nothing is able to quiet until he becomes exhausted. Other signs of his unsuitable food consist in frequent hiccough, flatulence, sour eructations and constipation. The sluggishness of the bowels is due to excessive secretion of mucus in the alimentary canal, excited by constantly renewed irritation of its lining membrane. The mucus being coagulated by the acid, resulting from the decomposition of starchy matters, covers the masses of food, and lines the inner surface of the bowel, so that the slippery surfaces glide over one another, and the contents of the intestine are not properly forced along. The stools themselves consist of little round masses, remarkably firm, and of a yellowish colour, exhibiting, when crushed, a cheesy appearance. They are evidently composed of curds and undigested farinaceous matter. The smell is often offensively sour, and they are accompanied by a considerable quantity of tough mucus, either covering the little lumps, or appearing in the form of strings, which have been mistaken for portions of parasitic worms.

This cause of wakefulness at night is so excessively common, that in every case where this distressing symptom is complained of, inquiry should at once be made into the diet of the infant, so that, by a proper adjustment of the quality and quantity of his food to his powers of digestion, the child may be supplied with a diet which he is able completely to assimilate. When this has been done, and the bowels have been assisted by a gentle laxative to expel their undigested contents, the improvement is immediate; the child sleeps soundly, and his irritability ceases at once.

It must be remembered that plumpness in an infant is no proof that his feeding is judiciously conducted. Badly fed children may be exceedingly fat, as we sometimes see in cases of commencing rickets, where the adipose tissue is in great excess, although the general nutrition of the body is by no means satisfactory; and, in commencing rickets partly from this cause, but partly, no doubt, from another cause which will be afterwards referred to, sleeplessness and irritability at night are exceedingly common symptoms.

Cold feet are a not unfrequent cause of wakefulness in infants. Delicate infants, in whom the circulation is languid, are very subject to coldness of the extremities; and griping pains in the belly are common accompaniments of the same condition. In all cases of abdominal pain in infants, the feet should be at once examined. When these are found to be cold, warming them by frictions with the hand, or by hot applications, usually causes the manifestations of pain to cease.

The feet in infants should be always carefully warmed before the children are put to bed; and should, in cold weather, be afterwards wrapped in flannel, or covered with thick woolen socks.

In *hereditary syphilis*, infants are exceedingly fretful at night; and, by their uncontrollable crying, are a source of great distress to the mother.

This symptom is usually the first sign of the disease, preceding the snuffling and the other characteristic symptoms of the outbreak of the inherited taint. The crying is possibly excited by nocturnal pains in the bones, similar to those affecting adults previous to the outbreak of the constitutional symptoms. On the appearance of the rash, the sleeplessness does not subside, but it soon disappears under the influence of specific treatment—a few doses of grey powder being sufficient to produce this result.

Worms, in older children, are well known to be a common cause of night terror and restlessness; but even in infants, crying at night is sometimes found to be due to this cause. Amongst the poorer classes, where infants are allowed early to share in their parents' meals, it is not so very uncommon to find them suffering from the presence of oxyuris vermicularis. To give one instance out of many which have lately come under my notice: A child of nineteen months, well nourished, strong on his legs, who had walked from the age of ten months, had cut eighteen teeth, and could talk, the mother said, well, was brought for fits of violent screaming, which began about 8 P.M., and lasted the greater part of the night. From the condition of the tongue, worms were suspected,* and a purgative of rhubarb and jalap brought away a large quantity of the small thread-worms. Afterwards, a careful regulation of the diet, and the administration of compound decoction of aloes, with a little iron, soon restored the alimentary canal to a healthy condition. The night screaming ceased from the very commencement of the treatment.

Besides the causes which have been enumerated, there are two others of not uncommon occurrence, and which are frequently overlooked. One of these is the influence of *habit* upon the infant. Children who are too much petted and indulged, easily contract habits which are sources of great annoyance, not only to themselves, but also to those through whose uncalculating tenderness the habit has been acquired. Thus, in young children little attention should be paid to cries excited by other causes than actual suffering or discomfort. Cries from wilfulness or fretfulness should be entirely disregarded. If a young child, whose diet is properly arranged, and who has taken his usual meal before being put to bed, wake crying in the night, the mother may satisfy herself that his cries are not produced by cold feet or colicky pains; and if the skin be not hot, and no cause can be discovered for his restlessness, he should be left in his cot to cry himself to sleep. If not, and it taken up and hushed in the arms of his mother, the probabilities are very strongly in favor of his waking and crying at about the same hour on the succeeding night, and requiring to be pacified by the same means. A habit is thus gradually acquired, which it is very difficult afterwards to overcome. Infants accustomed to be suckled at frequent intervals during the night are also exceedingly restless. This is a practice which cannot be too strongly

* I have elsewhere described an appearance of the tongue, which is very characteristic of the condition of the stomach and bowels so often accompanying the presence of worms in the alimentary canal.—See *Wasting Diseases of Infants and Children*, 8 vo. London: 1868.

condemned. Children should be accustomed early to take no food during the night. A very young infant, who has been suckled immediately before the mother retires to rest, will do well until five or six o'clock on the following morning without a further supply of nourishment. He is easily made to understand that this is a rule which can not be infringed, and will wake and sleep again without disturbance if he knows it is useless to complain.

Exhaustion of nerve-force, the reaction following over-excitement of the nervous system, is another not uncommon cause of wakefulness at night in children. Children of three or four years old, after the excitement of a child's party, or a visit to some place of amusement, are often found to be troubled with sleeplessness; the child either finding a difficulty in composing himself to sleep, or waking up after a short slumber. The same thing is frequently seen in young infants who have been played with and over excited immediately before being put to bed. The infant is uneasy and restless, starting frequently, and waking up with a fretful cry. This is not found with all infants, but is especially noticeable in those of delicate organization and great impressibility of the nervous system, and is, therefore, a frequent symptom of commencing rickets, where the irritability of the nervous system is very great.

Sleeplessness in infants is thus produced by many different causes, each of which will require a different method of treatment for its removal. To look upon such a condition as a distinct disease, removable by any so-called specific, is in the highest degree unphilosophical and unpractical. Opiates and, perhaps, bromide of potassium, may be occasionally useful in quieting excessive irritability of the nervous system, and may be, therefore, of service in the treatment of sleeplessness arising from the last two causes which have been mentioned; but to employ either as a universal remedy in such cases would be at least useless, even if it were not injurious. The screams of an infant suffering from an accumulation of undigested food—to take the commonest case—may certainly be quieted for the time by a narcotic; but so long as the cause remains, the screams will be renewed as soon as the soporific effect of the drug has had time to pass away. In such a case, bromide of potassium produces no effect whatever. In every case of sleeplessness in infants, the cause may be easily ascertained by careful investigation; and, when it is discovered, there is little difficulty about its removal.

SURGERY.

1. *Dolbeau's Use of Alcohol in Dressing Surgical Wounds.*

[Paris Correspondence, *British Med. Jour.*, Nov. 20, 1869.]

Twelve months ago, I paid several visits to the surgical wards of the Royal Infirmary of Edinburgh, where, among much which I saw to admire, was the manner of dressing surgical wounds. During last week, I

have seen a very different system employed by Dr. DOLBEAU, the eminent surgeon of the Hôpital Beaujon, in the Faubourg St. Honoré. The diversity of the practice from that employed in Edinburgh and London, and the satisfactory results of Dr. DOLBEAU's method, induce me to give a short account of it to my fellow members of the British Medical Association. I have no indictment to prefer against *carbolic acid* and the *first intention*, but I wish to describe a system by which good results are achieved in respect of surgical wounds, by disbelievers in the alleged advantage of healing by adhesion and without suppuration.

The following is Dr. DOLBEAU's plan of proceeding: Having performed the amputation, or removed the tumor, as the case may be, he staunches the hæmorrhage by such means as are appropriate and usual in the circumstances. He then washes the wound with what he calls *pure* alcohol, or, in other words, with the strongest commercial alcohol, unmixed with water. The next proceeding is to dry the bleeding surface with fine soft linen. The dressing is now applied. This consists in filling up the cavity caused by the loss of substance, or covering the flaps of the amputation, with feathery tufts of fine charpie soaked in pure alcohol. The part is then farther covered with compresses, which likewise are soaked in pure alcohol. The dressings are then enclosed in a double envelope of the impermeable gutta percha tissue, which has of late years superseded oiled silk for most medical and surgical purposes, and which is superior in respect of elasticity and cheapness. The whole of the dressings and coverings now described are retained in position by a few rounds of a bandage.

The dressings now described—applied, be it observed, when all bleeding has ceased—remain undisturbed till the following day, when they are entirely renewed. During the course of that day it is useful to open up the impermeable covering, and, without touching the underneath dressing, moisten it with pure alcohol. At each dressing it will be found that the charpie is adherent to the raw surface: to detach it without causing an oozing of blood, the dressings ought to be moistened by means of syringing it with alcohol.

When the proceedings as above described are carried out with exactitude, there is no bleeding from the wound, and the parts are kept in a favorable state of moisture. At the end of a period, varying from five to ten days, the raw surface is quite dry, and presents a slate-grey appearance. The surface may be kept in this dried-up state—in this condition of local embalmment—as long as is desired. Cicatrisation proceeds very, very slowly; and, to accomplish permanent healing, it is necessary to induce suppuration in the wound.

Dr. DOLBEAU holds that his method of alcoholic dressing prevents the occurrence of traumatic inflammation; and I am assured by friends who have had considerable opportunities of observing his hospital practice, that this opinion is well founded. He says—and this I have personally observed—that the patients have generally little or no fever, and that their strength is inversely proportionate to the suffering they have had, or the quantity of blood they have lost in the operation. By keeping

the wound in the state of alcoholic dryness (*sécheresse alcoolique*), as Dr. DOLBEAU calls it, traumatic reaction is prevented; and by that means, any necessary length of time is obtained for the patient to get up his strength. When all goes well—when the appetite and sleep are natural—when strength is regained, the alcoholic treatment is discontinued, and glycerine is used. The time has now come, according to Dr. DOLBEAU, when, without detriment, the patient can support suppuration. The surgeon, however, after instituting suppuration by dressing with glycerine, may, if he think it necessary, arrest or diminish the formation of pus by using pure alcohol, or a mixture of alcohol and water.

At first, the alcoholic treatment occasions a good deal of pain; but, by the end of the second or third day, the wound has become insensible. Some patients beg urgently that the alcohol may be used somewhat diluted with water, but Dr. DOLBEAU says that this demand ought to be resisted.

The direct application of pure alcohol often vesicates the skin surrounding the wound. When this inconvenience occurs, it is easily remedied by powdering the blistered surface with starch or rice. In a few exceptional cases, the lips of the wound become greatly swollen, while the surface of the wound has the usual alcoholic dryness and the usual slate-grey color. In such cases Dr. DOLBEAU discontinues using the alcohol, and has recourse to starch poultices. Once the swelling has disappeared—an event which occurs simultaneously with the establishment of copious suppuration—Dr. DOLBEAU resumes the use of the glycerine dressing, and syringes the wound every morning with pure alcohol, so as to cause the separation of all the portions of tissue destroyed by the suppuration.

Having now briefly described and explained Dr. DOLBEAU's method of alcoholic dressing, let me add that it seems to demand the careful study of surgeons, particularly as, according to Dr. DOLBEAU, it protects from traumatic fever, and enables the surgeon at pleasure to prevent or diminish the suppuration of wounds.

2. *Temporary Deligation of the Abdominal Aorta.* By WILLIAM STOKES, jun., Surgeon to the Richmond Hospital, Dublin.

[*British Medical Journal*, Nov. 20, 1869, p. 560.]

The case was that of a man, aged 50, who had a large pulsating tumor occupying the right ilio-femoral region. Pressure was attended with very severe pain, and the idea of using it was abandoned. The chief difficulty in the operation attended the separation of the peritoneum from the transversalis fascia. The aorta having been exposed, Mr. STOKES "passed a LÜER's aneurism needle round the aorta, just above its bifurcation, and attached to the ligature a piece of silver wire, which was then drawn round the vessel. The ends of this were then passed through Mr. PORTER's artery-compressor, and traction was made on them until all pulsation and *bruit* had perfectly ceased in the tumour. The ends of the wire were then secured to the ring of the clamp." The wound was now

closed. "The operation was almost bloodless." Afterwards, restlessness, pain, and a sensation of heat, were the chief symptoms. The operation was concluded at 11.15 A.M. At 2.30 P.M., it is noted: "The temperature in the left lower extremity is very good; that in the right has greatly improved." At 9 P.M., pulsation in the left femoral artery had returned. At 10.30 P.M., the patient became unconscious; and at 12 (midnight), he died—about twelve hours after the operation. On removing the wire-compressor and slitting up the artery, its coats were found not to have received the slightest injury. Mr. STOKES, in summing up, calls attention to the following facts: 1. Occlusion of so large a vessel without injury to its coats; 2. Early reestablishment of collateral circulation; 3. Rapid consolidation of contents of aneurism after the operation; 4. Death due to shock in a person with a fatty heart; 5. The non-liability to gangrene, owing to reestablishment of collateral circulation, and the power of removing the compression at any time. Finally, a table of the previous cases is given.

3. *Two Cases of Dislocation of the Clavicle.* By ALBION COBB, M.D., Webb's Mills, Me.

[*Boston Med. and Surgical Journal*, Dec. 9, 1869,]

On the 24th day of July last, Mr. J. F. H., of Casco, Me., was riding upon a wagon loaded with 23 cwt, of heavy merchandise, when, owing to an obstruction in the road, he was thrown from his seat and fell, face downward, directly in front of one of the forward wheels, which passed over him squarely from shoulder to shoulder. I was sent for to visit him, and found the sternal end of his left clavicle dislocated forwards, and forming a prominent tumor on the front of the sternum. A neighboring practitioner had been called before me, and had attempted to reduce the dislocation, but without success. Seating the patient in a common "office chair," I brought him fully under the influence of sulphuric ether. I then placed my knee against his spine, and, taking a shoulder in each hand, drew them steadily and forcibly backwards, while an assistant made pressure over the seat of the luxation. The bone slipped into its place. The patient was insensible for scarcely a minute in all, and awoke from a pleasant dream. The bone showed no disposition to become reluxated, but finding, from a glance at "Hamilton on Dislocations," which I had taken the precaution to bring with me, that all the cases of this dislocation which had fallen under the observation of that skillful surgeon had either not been reduced or had escaped after reduction, I made "assurance doubly sure" by treating it like a fractured clavicle, with the addition of a compress over the end of the bone. It has kept its place, in the most satisfactory manner, up to the present time.

The other case came under my observation while a medical officer in the Army of the Potomac, some time during the winter of 1862-3. As the wagons of the 2d Brigade, 1st Division, 3d Army Corps, were working off the extra exhilaration derived from an overdose of sutler's whisky,

by a pleasant game of fisticuffs, one of them received a severe upward blow upon the front of his left shoullder, which at once placed him *hors du combat*. As none of his companions were in a condition to know whether he was hurt or only drunk, little attention was paid to him that night, but as he was worse the next morning, I was requested to see him. I found the scapular end of his left clavicle dislocated upward and lying upon the acromion process, which it overlapped an inch or more. Drawing the shoulders backwards, and pressing with my thumb upon the dislocated end of the bone it was quickly reduced, and, on withdrawing my hand, as quickly became dislocated again. This it persisted in doing for a day or two, in spite of bandages, compresses and adhesive straps, much to my annoyance and vexation, and the pain and discomfort of the patient. At length, however, by some complicated harness, which I cannot now describe, I succeeded in tying it down to its place, and the patient in due time recovered with a good shoulder.

Editorial.

METEOROLOGICAL OBSERVATIONS AT ST. LOUIS, MO.

By A. WISLIZENUS, M.D.

The following observations of daily temperature in St. Louis are made with a **MAXIMUM** and **MINIMUM** thermometer (of Green, N. Y.). The daily minimum occurs generally in the night, the maximum about 3 P. M. The monthly mean of the daily minima and maxima, added and divided by 2, gives a quite reliable mean of the monthly temperature.

THERMOMETER FAHRENHEIT, 1870.

JANUARY.			FEBRUARY.		
Day of Month.	Minimum.	Maximum.	Day of Month.	Minimum.	Maximum.
1	25.0	36.0	1	25.5	49.5
2	20.0	32.0	2	29.0	31.5
3	24.5	31.5	3	20.0	31.5
4	22.0	38.0	4	20.0	35.5
5	26.0	43.0	5	25.0	37.0
6	19.5	25.5	6	26.0	44.5
7	17.0	35.0	7	30.0	41.0
8	5.5	19.5	8	29.0	29.0
9	11.5	32.0	9	29.5	54.0
10	29.5	52.5	10	31.0	56.0
11	35.0	51.5	11	44.0	59.5
12	47.5	61.0	12	28.5	36.0
13	27.0	32.0	13	21.0	44.5
14	26.5	35.0	14	40.0	61.0
15	33.5	37.0	15	31.0	49.0
16	33.0	59.5	16	32.5	60.0
17	11.0	19.0	17	21.0	33.0
18	12.0	23.5	18	14.0	38.0
19	17.0	37.0	19	9.0	37.5
20	27.5	43.5	20	-1.0	17.0
21	25.0	41.0	21	7.5	30.0
22	34.5	52.5	22	23.0	36.0
23	27.5	33.5	23	29.0	41.5
24	27.5	32.0	24	26.0	43.5
25	27.5	54.0	25	31.5	57.5
26	25.0	34.0	26	43.5	66.0
27	17.5	38.5	27	35.5	46.5
28	26.0	42.5	28	31.0	46.0
29	34.0	45.0			
30	36.0	41.5			
31	33.0	37.0			
Means....	25.3	38.6	Means....	25.8	43.6
Monthly Mean...	31.9		Monthly Mean...	34.7	

REPORT OF ATMOSPHERIC ELECTRICITY, TEMPERATURE, AND HUMIDITY.

BASED ON DAILY OBSERVATIONS at 6, 9, 12, 3, 6, AND 9 O'CLOCK, FROM MORNING TILL NIGHT, AT ST. LOUIS, MO.

1.—Monthly Mean of Positive Atmospheric Electricity.

Year	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.	Mean in 10 years.	No. of Thunder Storms.	Prevailing Winds.
1870	Jan.	8.5	9.2	7.2	7.9	10.6	8.2	8.6	11.0	1	nw. and se.
1870	Feb.	8.7	11.6	10.2	8.5	12.8	9.4	10.2	9.9	1	nw. and se.

2.—Monthly Mean of Temperature, Fahrenheit.

Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month
1870.	Jan.	28.2	29.5	36.4	38.2	34.4	31.7	33.1
1870.	Feb.	29.7	33.1	39.4	42.8	39.7	35.2	36.6

3.—Monthly Mean of Relative Humidity.

1870.	Jan.	88.5	75.9	68.1	68.0	75.8	81.1	76.2
1870.	Feb.	86.7	72.0	58.2	52.5	64.1	69.5	67.2

Both January and February were mild winter months, their mean temperature 32.1 and 36.6 are somewhat above their average mean, 32.4 and 35.3. The quantity of rain and snow in January was 2.00, approaching its average 2.14. But in February the quantity of rain and snow amounted only to 0.33, while the average is 2.66. February was, therefore, an unusually dry month, and positive electricity was for the same reason also higher than its average. The prevalence of scarlet fever may be connected with that meteorological condition of the atmosphere. It is certain, at least, that the germ of scarlet fever, whatever it may be, does flourish more in dry, cold weather with high positive electricity.

An usual occurrence happened on the night of the 16th and 17th of January, when after a warm day, a violent thunder storm broke out in the evening, changing after midnight into snowfall. The thermometer in that night fell 48.5. The coldest temperature was experienced on Feb. 20th (— 1.0), which is the coldest day during this winter. In other parts of the country the thermometer is reported to have fallen to 20 and 30 degrees below zero; also heavy snowfalls occurred East and North, without touching the center of the Mississippi Valley.

AMERICAN MEDICAL ASSOCIATION.

Office of Permanent Secretary.

WM. B. ATKINSON, M.D..

1400 Pine Street, S. W. cor. Broad, Philadelphia

The Twenty-first Annual Session will be held in WASHINGTON, D. C., May 3, 1870, at 11 A. M.

The following Committees are expected to report:—

On Cultivation of the Cinchona Tree—Dr. LEMUEL J. DEAL, Pennsylvania, Chairman.

On the Cryptogamic Origin of Disease, with special reference to recent microscopic investigations on that subject—Dr. EDWARD CURTIS, U. S. A., Chairman.

On the Doctrine of Force, Physical and Vital—Dr. J. H. WATTERS, Missouri, Chairman.

On Variola—Dr. JOSEPH JONES, Louisiana, Chairman.

On the Relative Advantages of Syme's and Pirogoff's Mode of Amputating at the Ankle—Dr. G. A. OTIS, U. S. A., Chairman.

On a National Medical School—Dr. F. G. SMITH, Pennsylvania, Chairman.

On Commissioners to aid in Trials involving Scientific Testimony—Dr. JOHN ORDRONAU, N. Y., Chairman.

On the Climatology and Epidemics of States—One member from each State.

On Veterinary Colleges—Dr. THOMAS ANTISELL, D. C., Chairman.

On Medical Ethics—Dr. LEWIS A. SAYRE, N. Y., Chairman.

On American Medical Necrology—Dr. C. C. COX, Maryland, Chairman.

To Memorialize State Medical Societies—Dr. N. S. DAVIS, Illinois, Chairman.

On Nomenclature of Diseases—Dr. F. G. SMITH, Pennsylvania, Chairman.

On Medical Education—Dr. T. G. RICHARDSON, Louisiana, Chairman.

On Medical Literature—Dr. J. J. WOODWARD, U. S. A., Chairman.

On Prize Essays—Dr. GRAFTON TYLER, D. C., Chairman.

Voluntary communications will be presented by—

Dr. JOHN CURWEN, Pennsylvania—On the proper treatment of the Insane.

Dr. NATHAN ALLEN, Massachusetts—On the Physiological Laws of Human Increase.

Secretaries of all Medical organizations are requested to forward lists of their Delegates, as soon as elected, to the Permanent Secretary.

Any respectable Physician who may desire to attend, but cannot do so as a delegate, may be made a *member by invitation*, upon the recommendation of the Committee of Arrangements.

W. B. ATKINSON.



THE SAINT LOUIS

Medical and Surgical Journal.

MAY 10, 1870.

Original Communications.

CONTRIBUTIONS TO SURGERY.

By LOUIS BAUER, M.D., M.R.C.S. Eng., Prof. of Surgery, St. Louis
College of Physicians and Surgeons, etc.

1. *Total Exsection of the Elbow Joint. Recovery with a Flexible and moderately Useful Extremity.*

[With Four Photographic Illustrations.]

Mr. F. H. called on me in July last for surgical aid. From early childhood he had been affected with a disease of his right elbow joint, which continued until his adolescence. For thirteen successive years he was entirely free from the original trouble, when it again broke out and continued with unabated severity until the time he presented himself for treatment. Although the patient has no personal recollection of the commencement of the disease, he has learned from his parents that, at the tender age of two years, he met with a fall which injured his right elbow. Soon after, pain, swelling and suppuration followed in

rapid succession, and never left him until he had reached his eighteenth year, when the last fistulous opening closed and the elbow assumed a more natural appearance.

His general health seems to have suffered but temporarily, if at all; and though the mobility of his elbow joint had been impeded for years, he attended school and acquired a degree of education commensurate with his station in life, and even excelled in penmanship. Fortunately for the usefulness of the extremity, the forearm had ankylosed with the humerus in a semi-pronated and flexed position, which enabled him to use it without serious embarrassment in different business pursuits.

About five years ago the old trouble was rekindled without recognizable cause, unless it be ascribed to an attack of intermittent fever and jaundice from which he had previously suffered. Since then his elbow has been tender, tumefied, emitting bony detritus, and copiously suppurating, so as to penetrate the dressings with matter. Of late he has been attacked with fever, lost his appetite and rest, and become apprehensive of impending danger. The continued drain on the system had evidently made marked impression. Though his frame denoted more than average physical strength, he appeared feeble, anæmic and attenuated.

At the time of the examination his appetite and rest were good, notwithstanding night sweats from which he had recently suffered. The right arm was much reduced in circumference, which greatly contrasted with the enlargement of the elbow. The growth of the extremity seems likewise to have been retarded. The mobility of the elbow joint is completely destroyed by bony cementations and its contours accordingly changed. The forearm is held at an angle of 110 deg. in semipronation. About the elbow there are several funnel-shaped cicatrices adherent to the subjacent bone, and several fistulous tracts, at the bottom of which diseased bone is readily felt. The discharge of sero-purulent fluid is excessive. The integu-

ments are not discolored; they present, on the contrary, that blanched appearance so peculiar to white swelling, and which corresponds with the œdematous and plastic infiltration of the peri-articular structures so characteristic of bone disease.

As may be inferred from the preceding statement of the patient, the ætiology of the case is by no means definite or conclusive. The alleged traumatic injury is probably correct in point of fact; whereas the causes of the recurrence of the disease remain an enigma useless to speculate upon. From all I could learn, the disease was entirely disconnected with hereditary and constitutional taint. The one fact alone, that the patient has preserved tolerable good health during the continuance of his disease, and enjoyed most excellent health during the intervening period of 13 years, seems to preclude that interpretation. The recent constitutional disturbances were certainly the result of the local trouble, and not the cause; continuous loss of substance and pyæmic infection must gradually undermine the most robust constitution.

Considering, therefore, that the caries of the elbow joint was both extensive and progressive; that the constitution was seriously threatened, if not already vitiated; and, in fine, that the patient had derived no benefit whatever from the usual remedies, I was impelled to suggest exsection of the carious bones as a dernier ressort. On the part of the patient no objection was made. He seemed to have expected and obviously prepared himself for such an eventuality.

After the necessary preliminaries, the operation was performed on the 2d of August last. The examination of the elbow had left some doubts in my mind as to the extent of the carious process. The first incision was therefore made nearest to the centre of the disease, that is to say, on the radial side. I had scarcely reached the bone when I became satisfied that a partial exsection would be insufficient. The disease had not only compromised the external condyle of

the radius, but extended alike to the ulnar side of the joint. No alternative presenting itself, I proceeded with the total exsection by completing the incision in a letter of **H** form. On reflecting the two flaps thus formed, I fully exposed the still ankylosed joint, and without obstacle finished the operation in the usual manner. The excavation of the external condyle necessitated the removal of the entire epiphysis of the humerus, and even then the gouge had to be brought into play to prevent the greater shortening at the radius. The insertion of the biceps muscle could barely be preserved. The coronoid process of the ulna with the insertion of the brachial muscle had to be sacrificed. The cut surface of the bones presented everywhere a healthy and bleeding appearance; nothing was left to chance. The bleeding was, on the whole, but moderate, and arrested by the application of ice-water. The integumentary wound was then closed by interrupted sutures and the extremity, bent at an angle of 110 deg., was placed in a wire splint expressly made for the occasion. Unfortunately the ulnar nerve had been inadvertently severed. I do not intend to palliate the accident by the, perhaps, relevant plea that the nerve had been lifted out of its groove by the thickening of the periostium, for its altered situation might have been anticipated from the condition of the articular surroundings. I must confess that I was taken completely by surprise by the close approximation of the ulnar nerve to the fascia. However deplorable the accident, I have at least the consolation of knowing that its consequences were but of transitory duration.

The prevailing heat at the time of the operation so rapidly induced the decomposition of the discharge, that the re-opening of the wound at its most depending part became necessary before 24 hours had elapsed. Indeed, septicæmic symptoms had already set in with their characteristic perturbations of the system. Thorough cleansing, permanent local baths and a few doses of quinine averted the impending danger. Thenceforward no untoward circum-

stances marred the gradual closure of the wound by healthy granulations. At the end of six weeks the greater part had firmly cicatrized. There remained still a small fistulous opening at the junction of the external longitudinal with the transverse incision, even as late as the 5th of February last, when the photograph (facing p. 193) was taken. Probably the fistula is still in connection with uncovered bone, although I have failed to strike it with the probe. The surroundings of the elbow are of healthy appearance throughout. The ordinary position of the arm is at an angle of 110 deg., and in semi-pronation. The connection between the humerus and the bones of the forearm are made up of tolerably firm fibrous tissue, which allows a mobility of not less than 45 deg. The supination to a limited extent is likewise preserved.

As yet the patient has not acquired sufficient muscular power to avail himself of the mobility for any practical purpose. On the contrary, writing is more difficult than before the operation, and it speedily exhausts the strength of the arm. Hence, I have deemed it necessary to still support the extremity by a moulded sole-leather splint. The general condition of the patient has steadily improved. Since the operation his weight has doubtlessly increased 15 lbs. At this juncture it is, of course, impossible to form an approximate estimate of the future usefulness of the extremity; from the loss of the insertions of the brachial and triceps muscles and from present appearances, I apprehend material impediment. Nothing could be more desirable than the complete ossification of the interosseous structure, which I favor by insisting on the rest and unchanged position of the extremity.

REMARKS.—Some eminent surgeons have recommended and performed the exsection of the elbow in bony ankylosis as a legitimate operation, for no other object than to restore the lost mobility to the articulation. From the favorable results alleged to have generally attended these operations, one feels inclined to hazard such undertakings. Having

had but limited opportunities, I do not pretend to place my experience against that of my professional compeers. However, I am unable to strengthen their case by my assent; the results of three operations performed by myself for the specified purpose of removing carious bone, do not encourage the hope of a very useful arm. In each of these cases the healing took as satisfactory a course as in the case just narrated; the mobility achieved in all was not available. In comparing the previous and present status of the last patient, with regard to the usefulness of his extremity, the result cannot be considered favorable.

If the operation had been performed for the sole object of rendering the arm flexible and more useful, the failure would be self-evident. I, for one, should feel disinclined to consider bony ankylosis of the elbow joint a sufficient indication for operative interference, unless the position was very awkward and disfiguring. Perhaps the after-treatment may have had its influence upon the result. Most surgeons, particularly the Germans, prefer flexed position of the forearm from the very beginning, whereas CRÚVEILHIER, ERICHSEN and others adopt an almost extended position, at least for a week or so after the operation, with a view of establishing a firmer and shorter connection at the elbow. ERICHSEN, in his late edition, expresses his opinion as follows: "After the operation the limb should be laid on pillows, nearly in the extended position, so that the cut portions of bones may be in close approximation with one another;" and again: "At the end of a week or ten days, when granulations have sprung up, the arm may be put on a slightly bent leather splint, and as the healing process goes on this may gradually be flexed, until at last it is brought to a right angle. The fibrous union that takes place between the bones will be closer, and a more compact and useful false joint will form than if the osseous surfaces be too widely separated in the first instance and be allowed to unite by a lengthened ligamentous tissue."

The weighty remarks of that distinguished surgeon have

considerably exercised my thoughts. The positive assurance that better results may be confidently relied upon from the temporary observance of the extended position, can be but the fruit of mature deliberation and practical experience. Considering the *modus medendi* in compound fractures and the conditions under which false joints form in ordinary ones, it would appear that ERICHSEN's advice deserves the closest attention, and I certainly regret that I have not given this plan a fair trial.

In his excellent monogram on resections, OSCAR HEYFELDER, of St. Petersburg, adverts to cases in which the removal of the elbow joint had resulted in the entire uselessness of the extremity. He says the extremity hangs powerless at the side as in complete paralysis, and has to be swung from the shoulder and supported by the opposite hand. Whether this condition is the inevitable result of the loss of all muscular insertions, wholly or in part attributable to the flexed plan of the after-treatment, does not appear. The facts in the present case are certainly suggestive.

The annexed photographs, taken at the establishment of Mr. SCHOLTEN, of this city, are illustrative of the present state of the elbow and the appearance of the patient generally. (Fig. 1) bone removed, (fig. 2) posterior, (fig. 3) anterior view, (fig. 4) splint employed. It will be noticed that a part of the trochlea and the external condyle are destroyed by caries, and the rest more or less corroded. The olecranon and coronoid processes of the ulna are united with the humerus by new bone in an almost rectangular position. Of the radius nothing remains. If this bone has ever been ankylosed with the humerus, which seems probable from the fact that semi-pronation had been stationary to within a few months before the operation, the caries had entirely destroyed and left no vestige of the capitulum and collum radii. The specimen furnishes no evidence as to whence the disease primarily started, nor are traces of a previous fracture visible. The same remarks apply to the return of the caries.

To the splint I attach no special importance, although I presume it to be preferable to the plaster of Paris bandage from the fact that it is equally effective in immobilizing the elbow, and leaves the wound more approachable to wet applications without lacking in firmness.

2. False Anchylosis and Contraction of Knee-joint. Tenotomy and Forcible Extension. Recovery with a Straight and Useful Limb.

[With Two Photographic Illustrations.]

The following case presents no extraordinary features, either pathological or therapeutical; on the contrary it is one of those numerous articular troubles with which the Mississippi valley seems to abound. Nevertheless I have been prevailed upon to publish the case for the exclusive purpose of demonstrating the susceptibility of the like impediments to ready amelioration.

The patient, J. H., introduced on the 6th of January last to the clinic of the St. Louis College of Physicians and Surgeons by Dr. ALLEN of this city. Having no accommodations for in-patients at the college, I procured his admission to the City Hospital.

The clinical examination elicited the following facts: æt. 26 years; miner by trade; English parentage; moderately good constitution; weight about 145 lbs. The father of the patient still alive, and 64 years old, likewise a miner and enjoying good health. His mother died of pulmonary phthisis; a younger brother present on the occasion is a fair specimen of a laboring man.

It appears that the patient had been perfectly healthy up to his 17th year, when, without notable cause, he was attacked by severe pain and swelling of the left knee-joint, confining him to his bed for a short time. Although he soon resumed work and managed to keep his place, he was nevertheless often obliged to rest his limb for a day or two at a time. The surgical treatment which he had procured wrought no material change in his condition; it neither re-

lieved the constant soreness of the knee, nor did it prevent the limb from becoming contracted. At last he resigned all hopes of being improved, and for the last three years he has been without any treatment at all.

Of late the affected knee has become more troublesome and a greater impediment to his business than ever before. With a view of procuring some amendment he came to this city, and was placed, as before stated, under my charge.

To all appearance the patient had not severely suffered from the local disease, for his constitution was unimpaired. Locomotion was evidently laborious and painful, but when in a recumbent posture he was quite at ease, suffered no disturbance of his rest and enjoyed a good appetite.

The left knee-joint was tender on touch or motion, considerably swollen with an increase in circumference of three inches; its surface was pallid and intersected by distended veins; the temperature notably raised; the consistency of the periarticular structure softened by œdematous and gelatinous infiltration, so as to retain digital impressions. The bones did not participate in the enlargement. The normal contours of the joint had thus entirely vanished, while the limb at large had suffered marked attenuation. The mobility of the knee-joint was not entirely lost, but materially impeded; the angle of motion did not exceed 40° . The cause of the impediment was fibrous adhesion of the articular face of the patella with the femur. The ordinary position of the knee was at an angle of 163° , which could be reduced by flexion to 40° , but was not increased by extension. Every attempt at extension was not only resisted by the biceps muscle, the external duplicature of the *vagina femoris* and the intra-articular bands, but also caused severe pain. The remaining hamstring muscles were not implicated in the resistance, nor did the *gastrocnemius* muscle participate in the mechanical opposition.

This was obviously a case of synovitis maintained and protracted partly by the malposition and partly by the use

of the extremity. That such was the case was clearly demonstrated by the fact, that rest would remove all inconveniences and give perfect ease to the patient. The causes of the existing trouble were rather obscure. Though the patient ascribed them to rheumatism I could not accept that, since the knee-joint had alone been affected and no other rheumatic symptoms had presented themselves. Nor could the disease be considered as the result of inherited constitutional vitiation, though the early decease of one of the parents from phthisis seemed to point in that direction; because the patient had been well up to his adolescence and preserved his constitutional health notwithstanding the affection of his knee occasioned suffering and frequent confinement to the sick room.

The disease was evidently of local origin and bearing and, probably, connected with the hardships of a miner's life. Considering the constrained positions which miners have to assume at their work, bending their knees at a very acute angle, kneeling on a hard and uneven surface and continuing so for hours and days, it would seem that these were sufficient causes of synovitis. The very mildness of the inflammation and its very moderate consequences under the most favorable circumstances to develop a destructive process, seems to fully bear out this view. With these impressions I could not hesitate in pronouncing a favorable prognosis and in pursuing the subjoined course of treatment.

On the 7th of January, in the presence of my colleagues and students, the patient was put under the influence of chloroform, the resisting structures (the duplicature of the *vagina femoris* and tendons of the *biceps femoris*) were successively and subcutaneously divided, and the wound hermetically closed. By repeated forcible flexion and extension, the intra-articular adhesions were then ruptured and the limb eventually brought into a fully extended position. Being carefully bandaged with flannel up to the knee, and the articulation firmly compressed by strips of

adhesive plaster, the limb was secured in an iron splint, with foot-board attached, extending from the *tuber ischii* downward.

To the inexperienced spectator such a proceeding seems appalling, but we know that these operations are painless, and, as will be seen, exceedingly useful, and can not be superseded by any other means, for gradual extension is very painful, mostly ineffective, even dangerous in its consequences by causing a relapse of the original disease, and, finally, few patients have the endurance to pass through such a protracted ordeal. Thanks to the protective efficacy of chloroform, inflammatory reaction after *brisement forc * belongs to the very rarest occurrences, provided the contracted muscles have previously been completely divided. When the patient recovered from the an sthesia he declared that he felt nothing of the procedure. The joint, however, remained sore for a few days. At the end of a week every part of the joint could be pressed upon with impunity. A few attacks of intermittent fever protracted the recovery of the patient and demanded appropriate treatment. Otherwise he received no medication of any kind. At the end of four weeks the large splint was exchanged for an interrupted splint and the patient permitted to leave his bed, supported, however, by crutches so as not to bear his full weight on the affected limb. The patient was discharged on the 10th of February with a straight and painless extremity.

REMARKS.—The relief of the preceding and similar impediments is not exclusively a matter of form and appearance, but a necessity in the eradication of still existing inflammatory symptoms. Experience has taught that certain positions are favorable, if not absolutely indispensable, to the cure of articular diseases. Rest and position combined are better means in reducing articular inflammation than anything else heretofore in vogue. In order to achieve the object the contracted muscles must be previously divided. B. LANGENBECK, of Berlin, among other

surgeons, dispenses with myotomy and tenotomy, and entirely relies on brisement forcé. I have likewise tried that plan, but it has not satisfied my expectations; either reaction followed, or the limb remained in a slightly bent position unfavorable to a speedy recovery. Most patients content themselves with a straight limb; in some instances it is inexpedient to attempt the restoration of mobility. Hence there is no loss in the division of contracted muscles even if they should fail to reunite. The apprehension of non-union is altogether imaginary, the union being the rule, non-union the rare exception. My own experience is to the effect that divided muscles become almost if not entirely as useful in locomotion, as before.

The reason why I did not attempt to restore mobility to the knee-joint in the present case is evident from the fact that there was still inflammation extant, and that the moving of the still inflamed joint would inevitably have increased the inflammation. By this time the intra-articular connections may have reformed, and false ankylosis may have again become established, but in a more useful and protected position. If the patient should insist upon mobility at a time when all inflammatory symptoms have become extinct, I should again rupture the fibrous adhesions with the same precautions and prevent the agglutination of the articular surfaces by constant passive motion. I presume, however, that the patient will get along satisfactorily and not return to a new trial, which would impose upon him a considerable loss of time.

Figures 5 and 6, on the annexed plate, explain themselves. The former impression was taken on the day previous to the operation, the latter on the day of discharge. The general appearance and health of the patient, as can be seen by the photographs, have not materially changed either from the effects of the operation or the confinement for five weeks at the hospital.

3. *Traumatic Epilepsy and General Paresis relieved by Trephining.*

Whilst engaged in clinical tuition at the City Hospital, my attention was attracted to one of the patients who had been suddenly attacked by an epileptic paroxysm. It did not last more than five minutes, was not particularly violent, and was characterized by the usual symptoms. On learning that the patient had of late been frequently attacked, that the paroxysms seemed to be on the increase, and that he himself ascribed them to an injury sustained in boyhood, my interest became intensified and I determined to subject the case to closer observation, which elicited the following facts:

John T. H., æt. 26, American, single, watchmaker by trade, but has been occupied in various other employments. At the age of ten years, he was struck anteriorly to the right parietal protuberance by the flat of an axe, producing a scalp wound. Nothing but the ordinary sore head followed. Two years afterwards he became subject to epileptiform convulsions, which slowly but steadily increased in frequency and severity up to the time when I first met him. Formerly, a month or more intervened between the paroxysms; lately, he had had several each day, and as many as ten during the preceding twenty-four hours. About the time of the inception of the epilepsy he lost the sight of both eyes. The blindness continued for two months, when he recovered the sight of the left eye, remaining, however, totally blind of the right. Aside from the epileptic attacks, he frequently suffered from headache, emanating from the place of injury; he was likewise subject to optic delusions in the shape of *mouches volantes*. Moreover, his mental faculties and muscular powers have gradually decreased, particularly on the left side of the body. The hemiparesis has but lately supervened.

The patient is of medium size, apparently well nourished; rather pale and bloated. His appetite was good, bowels regular, sleep however disturbed by anxious dreams, during

which he talked and cried out. His behavior was rather singular, retiring and reticent. At times he stared for hours at space, talking to himself in an undertone or brushing away imaginary insects. When spoken to, he answered hesitatingly, but rationally. His memory was obviously impaired, subjecting him to mistakes of place and time. Temperament even and bland, scarcely at any time manifesting irritability or excitement. The expression of his countenance was rather dull. The right eye was completely amaurotic, the pupil clear, regularly formed and susceptible to light, although the contractions were sluggish; the eyeball slightly divergent. The patient walked feebly, and the muscles of both sides of the body were unequally below par, those of the left being weaker and flabbier. There was, however, no tremor or any involuntary movement noticeable. The grip of his hand was hardly equal to the strength of a boy's, and he showed very little strength in his lower extremities when in the recumbent posture. The temperature was somewhat below the normal, and consequently he coveted warm dressing and artificial heat. Pulse 55, but regular. There was no change in the form of the skull, nor was there any tenderness about the locality formerly injured. Nevertheless, the patient distinctly stated that there was a marked soreness at the very place where he was struck by the axe. At times the soreness increased to pain, spreading over the whole side of his head.* The paroxysms were generally preceded by a very quick *aura epileptica*, consisting in a general uneasiness without any particular localization. As already stated, the epileptic attacks were of but short duration, scarcely exceeding a few minutes, and of a mild form, expressed by rigor rather than by clonic spasms. Sometimes the paroxysms stopped abruptly and occasionally terminated in a light stupor and stertorous breathing.

The vital organs were found to be in a satisfactory state

* His fellow-patients have often seen him touch the right side of his head both while he was asleep and awake.

of health and their functions in perfect regularity. In reference to the antecedents of the patient but little could be elicited to throw a stronger light upon the case. Epilepsy does not seem to have prevailed in his family. The patient has to all appearance led a life of some irregularity, and debauched *in venere*, but not so much *in potu*. He has been constitutionally syphilitic and lost by ulceration part of his soft palate, whence the defective articulation of guttural sounds. At present there is no syphilitic symptom extant.

It must be admitted that the clinical evidence for traumatic epilepsy was very strong. The cause assigned was sufficient to produce serious consequences to the skull, yet it is probable that the fracture of the internal cranial plate was of very limited extent. The epilepsy made its appearance when the patient had hardly passed his 12th year of age, when he had not yet indulged in sexual excess or suffered from syphilitic infection. This disease had, therefore, to be excluded from the consideration of the etiology; paresis, amaurosis, optic delusions, and general loss of muscular power are symptoms by no means inconsistent with the diagnosis of traumatic epilepsy,—in fact, they are often found associated with this disease. Moreover, the cerebral pulse and the extent of the paralytic symptoms could have their source only in the brain. Limited softening of the cerebral substance was by no means improbable.

The patient had already received some treatment before entering the hospital, but as will have been seen without the slightest benefit. The disease had, on the contrary, become aggravated, and threatened the patient with progressive paralysis and idiocy. Under these circumstances no time could be lost to relieve the brain from the supposed encroachment. There seemed to be no alternative but trephining, a view with which the resident physician fully agreed. The operation was performed on the 14th of January, when two buttons with the intervening bridge were successfully removed. The opening in the skull was conse-

quently of an oblong form, five-eighths by one and one-half inches, parallel with and about one inch and a half from the sagittal suture, being the exact place where the alleged injury had been afflicted. There was quite a lively hæmorrhage from the deep branch of the temporal artery, besides oozing from the emissary veins for a few hours. That no retention of coagula might take place, the wound was left open and loosely covered with warm water dressings.

During the after-treatment, various changes were noticed in the condition of the patient, more or less connected with the impeded discharge of the matter; whilst the pulse was generally but 96 or 100, it would occasionally rise to 112 or more, accompanied by headache, by blurred eyesight, slight nausea and fever. But after careful dressing these symptoms would rapidly subside into a more quiet state, leaving the patient in a comfortable and satisfactory condition. His appetite was usually very good, and his rest but occasionally interrupted. On the 19th of January there was some erysipelatous blush about the wound, gradually extending to the face. The surface was painted over with tincture of iodine, which proved efficacious in arresting the erysipelas. During the nights of the 25th and 26th of June he had two slight epileptic attacks, which have not recurred since. Probably they were caused by an accumulation of matter.

The wound has since firmly closed. From the moment that the operation was performed great changes have been wrought in the condition of the patient. He has become more attentive, takes more interest in his surroundings, gives more rational answers, is entirely free from optical illusions, is more communicative, does not as formerly stare at vacancy and talk to himself; rests without disturbance from dreams, has got rid of dizziness and headache, whilst his pulse has scarcely ever been below 86. On the 16th of March I tested his muscular powers, and found that they were materially improved; he is now able to walk, and

even to run, with a degree of agility which he alleges he has not enjoyed for years.

To all intents and purposes the patient was completely relieved, both from his epilepsy and the other cerebral symptoms, but whether this result will prove a permanent one, time alone can decide.

Although not unprecedented, it is nevertheless remarkable that these changes have been brought about without the proximate cause of the epilepsy having thus far been discovered, for the portions of the skull removed did not manifest the slightest evidence of a previous injury; the dura mater was also found to be healthy. Perhaps the trephining acted in the present case in reference to the brain, like iridectomy in amaurosis.

REMARKS.—The therapeutic value of trephining is overrated by some, and greatly disparaged by other surgeons. That it is an operation of great importance and risk to life cannot be denied by either side. That it is indispensable in cranial depressions and subcranial tumors, exostosis and collection of liquid, blood, serum or matter, must be admitted. The operation is therefore legitimate in all cases where the removal of portions of cranial bone is calculated to relieve dangerous irritation or compression of the brain. No doubt trepanation is susceptible of abuse, and this has contributed to the distrust in its efficacy.

Trepanation has often been resorted to where there was not the remotest chance of benefit occurring, but on the other hand it has been rejected when it might have saved life and restored health. To qualify the correct indications or counter-indications is a matter of great moment and surgical acumen; errors will necessarily occur where much is to be taken on speculation.

There is a class of ailments which seem to result from injuries to the head. Sometimes these injuries seem to be of little consequence, mere bruises made by the fist, or a blow upon the head with light and elastic substances. For the time the patient manifests no serious trouble, the bruises

disappear, the wounds heal kindly and the injury is forgotten. A year or two may have elapsed since the injury, when the patient manifests some mild signs of trouble in his head. There is tenderness at or about the injured locality which would occasionally amount to a headache. dizziness overtakes him, he loses muscular power, becomes pale and bloated, loses his self-confidence, memory and personal interest; is frequently absent-minded, loses occasionally his consciousness, and may ultimately become subject to progressive epilepsy. These symptoms may appertain to a softening, or quite a number of pathological changes of the brain. But is it not more probable that these changes, whatever their morbid characters may be, have some connection with the original injury? In pursuing the subject at large, we find that a number of consequences may arise from apparently trifling injuries which might be safely remedied by trepanation, whilst no other means could possibly reach them; and it is, therefore, in this class of ailments in which the operation should be favorably considered. If we refrain from resorting to this remedy until a perfectly clear and substantiated diagnosis has been arrived at, many good opportunities will be lost. Thus, for instance, KLEIN trepanned a woman, 38 years old, for a violent and fixed headache, which had set in three years after receiving several blows on the head from a fist. He trepanned immediately upon the sagittal suture and came upon a large Pacchionian gland, which he removed. The pain left immediately; returned, however, with the closing of the wound. A year after he again trepanned, and removed a second gland close behind the seat of the former. The relief was complete and lasting. HOELSCHER* relates the case of a girl, 19 years old, who fell down stairs and received concussion of the brain and a contused wound which exposed part of the right parietal bone, without depression, fracture, or fissure. The wound healed without interruption. Two months after the accident epileptic

**Hannoversche Annalen*, Vol II., p. viii.

paroxysms commenced, which increased in frequency and violence and resisted the ordinary remedies. When at last trepanation was resorted to at the cicatrix, the cranial bone was found perfectly sound. There was, however, a very vascular and sensitive tumor upon the dura mater of the size of a hazel nut. After its removal, the bleeding surface was touched with lunar caustic; the wound closed in three weeks and the epileptic paroxysms had not returned after a lapse of fifteen years. CALDWELL* speaks of a man who was kicked by a horse, and sustained a complicated fracture of one of the parietal bones. The patient received prompt and appropriate treatment and recovered. Six years afterwards he was attacked by epilepsy, and seven years subsequent to this attack he was trephined at the cicatrix. The dura mater fluctuated, and when opened from six to eight ounces of serum escaped. Two months after the patient resumed his business, perfectly restored to health.

I could readily adduce a large number of cases bearing upon the very point; in fact, surgical literature abounds with fitting instances. For the present purpose the foregoing cases will suffice to prove the correctness of my remarks. It frequently happens, however, that on trephining nothing whatever is found to account for the prevailing symptoms, and yet favorable results are obtained, as in the case I have related.

The probability is that the selection of the locality for the operation was erroneous, but that the existing pressure was nevertheless relieved by it. Under such circumstances, however, the symptoms may return, as in the cases related by VOGEL, SCHMUCKER, DZONDI and others, although other instances are adverted to which were permanently relieved, notwithstanding the failure to find the actual cause by trepanation.

1116 PINE STREET, March 19, 1870.

* *Boston Med. and Surg. Journal*, 1841.

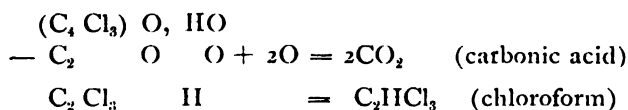
THE THERAPEUTIC USES OF CHLORAL.

By M. M. Pallen, M.D., Prof. of Obstetrics, etc., St. Louis Med. Coll.

The use of chloral becoming more extended every day, I propose to give a short account of its effects, as far as I have witnessed them.

All who have experimented with this agent agree that it exerts a decided hypnotic influence, and that it produces muscular relaxation; but there is no unanimity as to the mode of its action, and there is wide difference of opinion as to whether it be an anæsthetic or a hyperæsthetic. Some assert, as Dr. LIEBREICH does, that it is decomposed in the blood and that the chloroform resulting from this decomposition produces the observed phenomena. Others believe, with M. DEMARQUAY, that this is not the correct view. I am inclined to this opinion for the following reasons:

The fluidity of the blood is dependent upon its alkalinity. Alkalies increase its fluidity, as albumen is more soluble in alkalies than even in pure water. If chloral becomes chloroform by the action of the alkali in the blood, the alkali must undergo a change and can not therefore be in a condition to preserve the blood in its fluidity, and consequently serous clots (emboli) would be formed in the vessels, to the injury of the circulation. The action of chloral must, therefore, be specific and can not result from its decomposition into chloroform. If chloral act as an hypnotic and as a hyperæsthetic, it can not be *totally* converted into chloroform. There is no doubt in my mind, that chloroform is produced during the action of the chloral, but the chloroform arises chiefly by oxydation in the lungs,—deduct from the formula of chloral two equivalents of carbonic acid, we have chloroform:



But is it an anæsthetic, or is it a hyperæsthethic? And upon this depends the entire solution of the question. So far as my experience goes, when it produces sleep, the sleep is easily disturbed,—slight noises will arouse the patient, but he will fall asleep immediately again. Touch him a little roughly, and the same thing occurs. This is not the case when anæsthesia is produced by any agent. For these reasons I must coincide with those who think that it is an hypnotic, and valuable as such an agent, particularly where opium cannot be used. I will cite a few cases:

A lady labored under a certain form of monomania. She could not rest at night at all, but wandered (if not prevented) about the house. Chloral, in doses of thirty grains, one or two at night, composed her completely; and although she has now recovered her reason, she yet continues the use of the remedy.

Another lady, troubled with endometritis, could not rest at all. Opium in any form had a most unhappy effect. At first bromide of potassium in large doses, combined with lactucarium, procured some sleep at night, but it lost its good effects. She was given chloral in forty grain doses, and she sleeps well at night. Her daughter, a young girl of keen observation, tells me that any noise, or the slightest touch from her (she shares the bed with her mother), will arouse her parent, but she falls again to sleep.

To sum up, then, I think it a valuable agent to procure sleep, particularly in feeble individuals. I have given it with the happiest effects, after depletion, in puerperal convulsions. To prevent convulsions, if such do not demand depletion, the same having been used, or never required, I have used it somewhat extensively, and have given it, in some instances, in doses as high as a drachm; to children in doses from six to twenty grains, according to age.

There is a class of diseases in early childhood in which the use of chloral is indicated. I refer to some of the nervous affections. Dr. PARRISH described a species of

colic, to which was due an attack of convulsions resembling epileptic fits. Dr. PARRISH, who described the phenomena well, was mistaken in the order of antecedent and sequence. The disease arises primarily from irritation in the nervous centres, and the spasm in the bowels is the consequence. Moreover, it is the opinion of Dr. PARRISH, that if the child survive the period of dentition, it is usually safe. If the convulsive attacks continue during the period of dentition, and then cease, they are apt to recur at the age of puberty, or later, and the sufferer becomes an epileptic. Such children are apt to be sleepless, particularly on the eve of an attack. It is here that chloral is valuable. It induces a quiet sleep, and if there be spasm in the muscular coat of the intestine, it produces muscular relaxation.

So, too, in that form of affection known as night terrors. The child is sleepless, or even when it sleeps, the slumber is disturbed, and it moans or it grits the teeth. All this should be overcome, or else the child in after-years will be an epileptic. Physicians ought to be aware of this. The great rules of hygiene as to diet, exercise, etc., should be strongly urged on the parent, and to procure rest (a most important point), chloral is the remedy, opium the poison.

The dose to children will vary from four to twelve or more grains, according to age. I always use as the vehicle with which to mix the chloral, the syrup of tolu.

*ON FRACTURES.**

By JOHN T. HODGEN, M.D., Professor of Anatomy, St. Louis Medical College.

III.

INFLAMMATION.—In the brief sketch contemplated in these articles I do not propose to discuss fully any of the subjects brought forward, and especially that of inflam-

* Continued from page 103.

mation, but only to hint briefly at some (to me) interesting points,—these points possessing interest chiefly from the bearing they are destined to have on the treatment which is to follow.

Health so imperceptibly shades off into disease that the earliest departure, either in structure or function, can not perhaps be recognized. This very shading off indicates that the conditions necessary for the one are required for the other—but with such modifications as may not be recognized in the beginning of the change of action or structure. With all the conditions of health perfectly met (in a logical sense), we can not have inflammation, while a variation in any one of the conditions, so slight that (except as indicated by the changes in function and structure) it would not be observed, may and does give rise to the diseased processes and products which we recognize as inflammatory.

The conditions of normal nutrition being :

1. A right state of the part,
2. A proper supply of nutritive fluid, both in quantity and quality,
3. A proper stimulation of the part through a proper supply of nervous influence (whatever that may be) ;—the conditions of inflammatory action are :

1. A deviation from the normal structure of the part itself, as accomplished through various external agents,—as mechanical, chemical, electrical, or other stimuli. Any stimulus applied to a part exalts or hastens its action for the time,—first, as expressed through the more active performance of its special function ; and second, through a similar hastening of its general function. Thus, a muscle stimulated contracts, as an expression of its special office, and the waste resulting from this act is repaired (or nutrition is accomplished) as a part of the general process of nutrition, exhibiting its general function ; also a cell multiplication occurs, as an expression of the general function of reproduction which belongs to all tissues. These two

functions, waste and repair, seem to be performed by various tissues in a definite, direct ratio to each other. Muscles and nerves waste rapidly as the result of the exercise of their special offices, and are repaired rapidly. Bones and tendons waste slowly, and are repaired slowly. The more exalted in the scale of organization a tissue is the less perfectly is it repaired, or united when severed, and the lower in the scale of organization the more complete is the union when affected. Bones and tendons form perfect unions after being cut or broken, though considerable intervals may have existed, and the new tissue performs immediately (after the mechanical union is effected) its special function, which is purely mechanical. Now I do not wish to be understood that what is called provisional callus is true bone, though it does perform the office. If a nerve is severed, first it unites by cicatricial tissue, not of nerve kind capable of performing nerve action; but if the extent of structure to be repaired is considerable, a much longer time is required before such repair can be accomplished as will enable that part to perform its office. So, too, with muscle—the tissue first uniting the severed parts of muscles, one to another, is not such as is possessed of the contractile power of muscular tissue. This new material may and does serve the purpose of a mechanical bond between the severed parts, but is not muscle or nerve in structure or formation. Consequently there can not be a right state of the parts, thus newly produced, since it can not perform the special function of nerve or muscle, or the common function of nutrition as it is performed by nervous or muscular tissue. A bone broken or other tissue lacerated by the same cause that produces a fracture, leaves the parts thus broken or torn in an abnormal condition and consequently incapable of performing normal function. But other parts or those next (in a mechanical sense), though not destroyed, are stimulated by the mechanical irritant and begin, just as any other part would, to perform more rapidly their general function of nutrition and reproduction,

by selecting with more than ordinary rapidity the materials for their nutrition and the elements proper for the reproduction of their peculiar structure. So that the very force that breaks a bone lends its energy to the repair of the damage.

2. A proper supply of nutritive material, both in quantity and quality, is not only demanded for nutrition, but is essential for repair after injury. The quantity necessary for repair is increased by the active exercise of the nutritive and reproductive processes going on in the part injured. The very passage of blood through the tissues implies a change in the blood passing through, and the more rapid the change the more rapid the flow. Thus an unlimited supply of material can always be obtained by any injured part, provided it is in the vessels.

The quality of nutritive material furnished for the repair of injuries must be determined by the assimilative powers as exercised through the organs of digestion, absorption, circulation, respiration, secretion, and excretion; for all these functions determine, either by adding to or taking from the blood its various elements, its quality as a nutritive fluid.

All the inflammatory processes, conditions and results are but exaltations of the natural, healthy, nutritive functions, and all the expressions characteristic of the impaired condition are but exaltations of healthy processes, conditions and results. Thus of pain, heat, redness and swelling,—the first is only an expression of exalted nervous susceptibility, the second of hastened change in tissue, the third of rapid supply of blood, the fourth of increased storing of nutritive materials or their elaborated products; but suppuration, ulceration and mortification are expressive of diminished or suspended nutrition. Pus consisting of corpuscles and the debris of tissue, is nothing more than germs that have been starved to death by the absence of proper nutritive materials, and the tissues that have died, particle by particle, from the same cause. The products

of ulceration are the same, with an excess of starved tissues, dying particle by particle. Mortification is death of a part for want of nutritive material.

Pus corpuscles are germs that, if at the proper time they had received a proper supply of nutritive material, would have formed tissues. On a granulating and suppurating surface these germs are formed cells, some of which become parts of tissue and others undergo fatty degeneration and die. In healing by MACARTNEY'S modeling process, cell reproduction does not exceed cell nutrition, so that no more cells are formed than can be fed; whereas, by the suppurating and granulating process, more germs are formed than can be fed, and the excess die of starvation and are cast off as pus corpuscles. And it matters not whether these exudation corpuscles be exuded as white blood corpuscles from the blood vessels, or are born from the connective tissue corpuscles.

Notwithstanding the fact that inflammation may be regarded as an exalted physiological process, it many times results in destruction of the parts first involved in their changes. It must also be remembered that all inflammatory changes are not alike, and the conditions determining variations in the processes are of several classes :

1st, those dependant on peculiarities of general organization,

2d, on peculiarities of tissues involved,

3d, on peculiarities of the agent producing inflammation.

Of the first class, viz., peculiarities of organization, may be considered those conditions that are either hereditary or acquired; but while this subdivision is recognized, it should at the same time be remembered that a peculiarity that may be acquired by the parent may be inherited by the child, and the hereditary taint may be transmitted through many generations, predisposing many or all the individuals to peculiarities in the inflammatory processes. It must also not be forgotten that peculiarities that are inherited or

acquired by the individual, may be lost in the same individual or his offspring.

The second class, viz., peculiarities of tissue, determine not only the susceptibility to inflammation, but also modify the expressions. Thus in spongy bones it is much more liable to be extended than in the more dense parts. In mucous and serous membranes inflammations extend rapidly and almost certainly, while in muscles and in cerebral substance extension is not so certain to occur.

The class of influences that determine peculiarities of inflammatory changes, to which I wish particularly to call attention, is the third, viz., peculiarities of the agent producing inflammation, and the varying results from the same agent. The prick of a lancet will induce inflammation, though it may be slight and not marked by any peculiarity; but if charged with vaccine, variolous, syphilitic, or other poison, we have not only a peculiar inflammation in the part first involved, but peculiar constitutional changes in the organism. So, also, the stimulus of the deposition of eggs of various insects in the same tree or plant gives rise to a peculiar inflammatory change in the tissues of the tree or plant. Again, the same stimulation applied to the same body may cause simple inflammatory changes, or it may give rise to what we style malignant or heterologous growths, or of simple fibroma, myoma, or even to local vascular degeneration, resulting in the formation of aneurisms by anastomosis, etc., etc.

The above being true, we must be prepared to expect very great variations in the inflammatory processes occurring from fractures in individuals of various constitutional peculiarities having various tissues involved,—these tissues being involved to very different extents.

The treatment of inflammation occurring from fracture must depend on a variety of conditions that can only be determined by the peculiarities of each case.

Rest is a primary consideration, and as perfect repose of the part is important to the union of a fractured bone, so

too it is to the reduction of inflammations, that would either determine the changes of repair into those of waste or degeneration, or even absolute destruction of the limb or a part of it. Such appliances must then be adapted to the part as will secure this rest, as well as a proper retention of parts in situ. Under this head it cannot be too forcibly urged that fracture displaced should as early as possible be reduced, and reduction be maintained with as little mechanical support as will suffice to maintain position and secure rest.

The position of the limb is a matter of importance. If the inflammation be high, the part should be elevated so as to diminish arterial supply and facilitate venous return, and thus permit congestion in the part.

Cold,—a very valuable remedy in inflammation,—should be used with much discretion, a uniform depression of temperature being maintained; and this is best done by evaporating lotions applied by the use of thin cloths frequently wetted, if the air is dry, with pure water at the temperature of the body; or if the air is moist, alcohol may be added in such proportions as will insure a uniform depression from evaporation.

Pressure is a valuable means of diminishing inflammatory action, but the difficulty of making it uniform is almost insurmountable with means at present at our command. Could we attain a uniform pressure, we could so control the supply of blood that we could guide the inflammatory changes almost as perfectly as the engineer determines a given number of evolutions of his engine by regulating the quantity and tension of the steam admitted to his cylinder. It is true the stimulant applied to the structure excites the rapid changes of the inflammatory process, but these changes can not occur without an increased flow of blood; and this being once under the direct and precise control of the surgeon, the result may be definitely guided.

Practically surgeons control inflammation resulting from fracture more successfully by position and rest than by all

other means combined. I would not, however, undervalue opium, belladonna, bloodletting, purgation, or mercurials, but the three last must be cautiously used, since, when the blood is thinned and rendered innutritious, it is ill fitted to furnish the materials required for repair.

[To be continued.]

CASES OF PHTHISIS PULMONALIS.

A Clinical Lecture

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GENTLEMEN: I propose to call your attention to a very important form of disease—"phthisis pulmonalis," tuberculosis of the lung—familiarily known as consumption. By consumption we mean a constitutional affection with a characteristic local expression within the lungs. There occurs a peculiar deposit (?) or growth (?) in the substance of the organs of respiration, involving more or less of their structure in destruction; and with this local trouble we have a general emaciation, wasting, or consumption, more especially of the adipose tissues, every where in the body.

From the experience you have already acquired at the bedside, I am sure that most of you are quite able to recognize two distinct classes of cases. The first, in which the disease appears to develop itself suddenly, in an individual of previously good health, though there may have been, as there generally is, predisposition to chest trouble, and runs through its several stages with great rapidity, accompanied by relatively rapid emaciation. This class we term acute phthisis, "galloping consumption."

In the second class of cases we have a long train of symptoms and complaints referring to a general state and antecedent to the signs of local disease. Even after the morbid action within the lung has become manifest by

physical signs, the disease may progress slowly, and be marked by many and varying changes until ending in recovery or death, so that no definite duration can be laid for this the most common form of the disease. This class we term chronic consumption, and is so familiar that it is frequently recognized in its early stages, from the general or rational symptoms, by the unprofessional.

This primary division of consumption into two classes naturally suggests itself from the marked difference in the duration of the two forms of disease. Indeed, the first resembles often an ordinary acute inflammation passing through its various stages, and runs its course in a few months, weeks, and even days, apparently overwhelms the constitution by its violence and admits of but little help at the hands of the physician. It is regarded by many authorities as universally fatal. Whereas, in the second class of cases, the disease is insidious in its character and gradual in its developments, the morbid changes in the lungs being preceded by well known prodromata, constituting a peculiar cachexy in which there prevails a marked tendency, on the supervention of an adequate exciting cause, to the characteristic tubercular deposit (?) or growth (?) in the substance of the lungs, and not unfrequently coincidently with like morbid processes in other organs of the body. It is our duty, then, to study with all our powers of observation the phenomena which declare the existence of this cachectic state, as we are convinced from the experience of the most skilled observers, that the tubercular diathesis can, if not always, in a large proportion of cases, be corrected by judicious and timely interference, the local developments be prevented, and even the morbid changes be arrested,—in some cases completely, and in a greater number life be prolonged for many years.

Now, as regards acute phthisis, you must have observed with me at the bedside that, in several cases we have studied together, though there might have been an agreement in their general aspect, yet their clinical features

were not precisely similar. For example, in ward No. 32, I have called your attention to

CASE 1, in which the patient, LOUIS BETZY, a man aged 32, was admitted into hospital about four weeks since with what was recognized as an attack of pneumonia of the lower lobe of the left lung. That is, such a diagnosis was justified by the physical signs derived from percussion and auscultation as well as by the rational symptoms then existing. Now this patient having been ill for two or three weeks, and the disease having progressed to the stage of hepatisation, appeared to remain in *statu quo* and to show no disposition to the ordinary process of restoration by resolution. On the contrary, repeated and careful physical exploration soon showed that there was mischief brewing in the upper portion of the same organ, until finally there was no healthy lung tissue left on that side. You have all recognized the almost complete dullness on that side of the chest, with the signs of softening and finally of cavity at the apex, while several of you noticed the commencing dullness and the alterations of the respiratory murmurs under the right cavicle, declaring that the right lung has likewise become the seat of tubercular deposit.

Rapid and excessive emaciation has gone hand in hand with the morbid changes in the lungs, until now the poor fellow is a mere skeleton; the expectoration, originally the characteristic "brickdust sputa" of pneumonia, is changed; now muco-purulent and copious; he is exhausted by profuse night sweats, and will undoubtedly soon succumb to the extensive and fatal destruction of the respiratory organs. Although this patient declared himself to have been previously healthy, I think we made out decided predisposition hereditarily to lung trouble.

This one may be regarded as a type of that class of cases, several examples of which you have seen, where the disease seemed to have taken its point of departure from a pneumonic attack. I believe I have before made the observation, that not unfrequently patients show great reluctance to admit the expectoration of blood, and when questioned with regard to the symptom will often, if such an accident has occurred, pretend to treat the matter lightly and as of no consequence. We have an illustration of the fact in this case, the patient having declared his previous health good, but on careful questioning finally admitting to several attacks of hæmoptysis at long intervals.

CASE 2. In ward 37, I called your attention to the case of JAMES CALLAHAN, who presented yet another variety of rapid tuberculosis. On his admission into hospital he presented the general symptoms of simple acute bronchitis, and the physical signs were such as to confirm the diagnosis. Soon, however, there was reason to suspect something more

serious, first from the persistence of the chest trouble and from certain changes in the physical signs. You will remember that a noticeable feature was the rapid emaciation in so short a time as his illness had lasted, and on percussion dullness, which might have escaped a careless observer but easily appreciated by comparison, was found on the whole of one side of the chest, and most easily recognized behind. On auscultation, there was heard what we call crackling and subcrepitation generally diffused over the lung of the same side. The dyspnœa accompanying was also a noticeable feature in this patient and characterizes this class of cases.

We had here an example of the form of tuberculosis we commonly term "miliary," which name is applied on account of the minute size of the original and individual deposits of tubercular matter. Here the tuberculization takes place over a large area of lung tissue at once, "breaking out in a crop as it were, like any of the eruptive diseases of the skin." This form of tubercular disease is often rapidly fatal, as we can well understand from the amount of lung substance involved in the destructive process and the consequent interference with the function of respiration and proper organization of the blood. Hence the early and distressing dyspnœa.

The diagnosis of this form of phthisis is not always easily made, while its importance is the more apparent from its gravity. It is in the first place difficult to say where the bronchitis ends and the eruption of tubercles begins. We may believe we have to deal with a case of *simpel* bronchitis of the smaller tubes (capillary bronchitis); or we may confound again miliary tuberculosis with acute œdema of the lungs. In illustration of this source of error you may remember

CASE 3, of the Swede in ward 33, in whom we had, on his admission into hospital, a circumscribed pneumonia at the base of the right lung. The physical signs justified such a diagnosis; namely, dullness on percussion with crepitant râles, together with pain in same side and rusty sputa. The accompanying fever was of an asthenic, typhoid type, with a disposition to delirium and to sordes on the teeth or gums. After an illness of ten days or two weeks, resolution of the lung seemed to take place and he convalesced so far as to be up and about the ward; but his improvement was only of short duration, for at the end of a week at most he again took to bed, and, on physical examination, percussion showed

considerable dullness over the whole chest posteriorly, while on auscultation crackling and subcrepitation was everywhere perceptible. With this there was marked and constant dyspnœa with harrassing cough and frothy mucous sputum. Both cheeks were highly flushed and febrile action well pronounced. You may recollect further that from these data I ventured the diagnosis of general acute miliare tuberculosis, and further gave an unfavorable prognosis with four weeks as the limit of the patient's lease of life. The prognosis was, alas! correct, but a *post mortem* examination showed that the diagnosis was not equally so. We found on opening the thorax that the lungs did not collapse, yet every where there was crepitation when the lung tissue was pressed between the fingers, indicating the presence of air. The general color of the pleuræ, as well as of the lung substance, was of a bright scarlet or strawberry, and on section in various parts no evidence of tubercular or other consolidation could be found, while the incisions liberated a considerable quantity of serous fluid resembling somewhat the expectorations. In other words, we had the evidence of acute œdema of the lungs,—a rare condition, from which I believe it is almost impossible to differentiate acute miliare tuberculosis.

In another class of cases where the predisposition appears to be strong in individuals previously healthy, the deposition or growth of tubercles takes place in some part of the lung (as a rule, in the apex), seemingly excited by inflammation in the pleural or lining membrane surrounding the organ. These cannot be classed as cases of acute phthisis, because they are wanting in the active febrile reaction as well as in the extent of lung tissue involved in the morbid process, while they are to be distinguished from the cases of chronic phthisis by the absence of any of the ordinary antecedents of that form of the disease, by the sudden invasion of the attacks, and by the rapidity of their progress when the morbid process has once begun. The mortality in these cases is much below that of acute phthisis, and when not completely arrested, they are usually converted into the more chronic form of tuberculosis. The following cases will illustrate this variety of the disease.

CASE 4. In October, 1868, I went in consultation with a friend to see Mr. A. B., who had been confined to his bed and chamber for several weeks. He had been generally a man of good health and remarkable for his *muscular* power. His family history was not good, as several members had died of tubercular disease. He had contracted a cold several

weeks before I saw him, which (to use the common phrase) had settled on his chest. He had had pain on the left side, but never at any time very severe, with short interrupted respiration and fever, also a dry hacking cough. When I was called in consultation the acuteness of the attack had passed, but he was not progressing favorably and had still an annoying cough with constant fever. His temperature, as measured by the thermometer in the axilla, was 100°, with a pulse over 100 beats per minute. On percussion there was complete dullness over the whole of left side of the chest, while auscultation revealed absence of all respiratory sounds. On right side respiration was somewhat exaggerated. The left side of chest measured about an inch more than the right.

In two weeks from this time physical examination showed a less intensity of the dullness with some feeble respiration towards the apex and root of left lung. Soon after this Mr. B., by advice, went south to New Orleans, where he remained until Jan., 1869, when examination showed much diminished dullness, and resumption of respiration, though feeble, throughout the lung. At the *apex*, however, there was now evident a deep-seated and circumscribed dullness, with roughness of respiration, prolonged expiration and increased vocal resonance. There was also persistent cough with white frothy expectoration. Mr. B. improved somewhat, gaining strength and flesh up to the 1st of March, at which time he removed to New York and we lost sight of him.

CASE 5. April 1st, 1867, I was called to see Mrs. B., a widow lady about 30 years of age. Her family history showed that several members had had consumption. She had always been delicate. In February was ill and confined to bed for some days from what she considered a cold; had at the time an acute pain in the left side with more or less fever and some cough, but little or no expectoration. Was not seen by a physician. Has not been well since.

She is now quite feeble and much emaciated, and anæmic in appearance; her appetite is poor and capricious, with a loathing for solid and substantial food; thirst perhaps greater than natural; disinclined to all physical exertion. She complains of a hacking cough, which is most annoying at night; there is a little matter expectorated, which presents no characteristic appearance. There is considerable pain about the left shoulder with indisposition to raise the arm of the affected side, arising from no actual loss of power, but from the increase of pain on motion; also, increase of pain on pressure about the shoulder joint. This pain appears to be of a rheumatic character. She has fever and sweating at night, with want of rest and sleep; suffers from cold hands and feet; bowels tolerably regular.

On examination, the whole surface of the body is relaxed and covered with moisture, though the atmospheric temperature is pleasantly cool. Physical examination on this occasion was superficial, and consequently led to incorrect or at least incomplete diagnosis, having been limited to exploration of the subclavian regions.

Here there was no perceptible dullness on percussion on either side, and no apparent difference between the two. Auscultation revealed no alteration in the character of the respiratory murmur and no superadded sound, nothing beyond a general feebleness of respiration, which was perhaps most evident on the left side. Respiration accelerated, but no notable dyspnœa. Regarding the pain about the shoulder as of a rheumatic character, prescribed a mixture of bicarb. potassæ and colchicum, with alkaline lotion to the part; Dover's powder at bed-time.

April 6th.—Mrs. B. declares herself to be somewhat better to-day, with the exception of not having rested well during the last night; pain in shoulder has almost quite disappeared, but she now complains of a dull aching on the same side about the lower margin of the thorax, extending round to the epigastrium and through towards the spine. This complaint led to a more thorough examination, when percussion revealed perfect dullness from the fourth rib downwards on the left side. On auscultation there was complete absence of respiration in that portion of the lung corresponding to the loss of resonance; the voice sounds were not increased except just above the line of dullness, where ægophony was audible. The diagnosis is therefore clearer, as we have evidence of a considerable collection of fluid in the pleural sac of the left side. There is only a suspicion of tubercular deposit, which may coexist with the pleuritis. The absence of characteristic sputa and the character of the cough would seem to contra-indicate the deposition of tubercular matter, while the night sweats and emaciation are by no means extraordinary accompaniments of chronic pleuritis.

As the anæmic and debilitated condition of the patient contra-indicated the use of remedies directed to the removal of the fluid, it was thought advisable to build up the strength of the patient and to improve the tone of the system generally, and so promote and increase absorption. Thus we advised generous and nutritious diet, stimulants in moderate quantity, at the same time prescribing sulphas ferri et quiniæ, cod oil and a small blister to side.

April 12th.—Mrs. B. is to-day decidedly worse and has been obliged to keep her bed; cough extremely harrassing and constant with great increase in sputa, which is changed in character and has become mucopurulent; appetite poor and capricious. On exploration of the chest the effusion is found to have diminished considerably, but there is now decided dullness at the apex of the left lung with great increase of vocal resonance, amounting to bronchophony. Prescr.: Bromidi potassii, 10 grs. three times a day.

The tubercular disease once declared in Mrs. B.'s case, progressed rapidly. Softening of the mass took place about the middle of May,—that is, within two months of the beginning of the sickness; the signs of a cavity were soon well pronounced. She became greatly reduced in strength, so as to be incapable of even turning herself in bed, and was much emaciated from loss of appetite and constant diarrhœa. A resort was now had to the most easily digested as well as most nutritious articles of diet,—as beef essence, milk, and especially raw beef pounded to a pulp

in a mortar and seasoned with pepper and salt. Bromide of potassium was given with a view to allay irritation and procure sleep, and seemed to act very happily. Stimulants varied from time to time, sometimes brandy or whiskey, at others the malt liquors, porter or ale, as she fancied, were allowed in liberal quantities. Under this treatment the disease was completely arrested; the site of the cavity was recognized by the end of July as a consolidated spot, having completely healed. She regained her flesh and good looks, and by September was quite as well and comely as she had ever been.

In the case of Mr. B. you observe, first, the fact that at no time was there very severe pain, no evidence of active inflammatory excitement; yet there was a large collection of fluid filling the left pleural cavity, and on absorption of the fluid there was evidence of consolidation of the lung at its apex, from what cause it was not easy to determine absolutely. It was not probably due to simple carnification from pressure of the surrounding fluid, since the apex is no more liable to this condition than any other portion of the organ, probably less so from its situation. Again, as the signs were those belonging to the early stage of phthisis, and the family history showed a predisposition to that disease, we may fairly conclude that tubercular deposit was the cause of solidification. Here the family history was a matter of considerable importance as an aid to diagnosis.

The persistence of a high degree of temperature and of an abnormally rapid pulse were regarded as significant and indicative of morbid change in the lung tissue. This patient was put upon a tonic treatment of iron, quinia and strychnia, with cod liver oil and a moderate quantum of whiskey, and under that had gained strength and flesh when he left the city and went from under our care.

Not unfrequently you will meet with cases like the following, in which tuberculosis appears to supervene upon the subsidence of a febrile attack, as after typhoid or malarial fever. We may have something to say further on as to the way in which these febrile attacks lead to tuberculosis, through certain changes brought about in the

quality of the blood. For the present we must confine ourselves to the clinical features of the case.

CASE 6. I saw Mr. P. for the first time on 22d Nov., 1869; a German by birth, aged about 40 years, father of several children. For some time previous to this he had been in bad health, suffering from malarial fever and its consequent anæmia and debility. Nothing certain could be learned as regards the family history.

I found him in bed and complaining of general weakness and indisposition to any exertion. His appetite was poor; bowels irregular, with a tendency to diarrhœa; sleep disturbed and unsatisfactory; no special complaint of pain; dry, hacking cough, which was harassing from its frequent recurrence; little or no sputa; tongue clean; patient much thinner than he used to be; finger nails somewhat curved; temperature, 100°; pulse, 100; respiration accelerated.

Physical examination showed, on percussion, slight comparative dullness under left clavicle; lungs otherwise normally resonant. On auscultation, there was found *rude* respiration under both clavicles, with decidedly prolonged expiration on left side, while the inspiration was somewhat jerking (*saccadée*) in character; other organs apparently normal.

He was put upon cod liver oil and the syrup of the hypophosphites.

Saw him again Dec. 9th. The disease had progressed rapidly. The symptoms were then much more decided and pronounced. He complained of pain under left clavicle. Cough not so troublesome, while expectoration was copious. More diarrhœa. No appetite and much thirst. Fever at night, with burning of hands and feet, followed by profuse sweating.

On percussion, dullness was much more pronounced under either clavicle, especially left, with increased resistance; and on auscultation, the respiration was harsh and blowing and accompanied by moist râles, indicating commencing softening. The case progressed rapidly from bad to worse; and in the course of a week or ten days, physical examination revealed a considerable cavity under the left clavicle. Pectoriloquy was well marked, and best heard posteriorly in the supra-spinous region; as also cavernous respiration and gurgling; while crackling extended somewhat to the middle of left lung, with corresponding dullness.

Fougera's preparation of cod liver oil was given in combination with ether; and a diet of raw pounded beef, alternating with cream, which the patient took with increasing appetite. Inhalations of carbolic acid and comp. tinct. iodine were used twice a day by means of steam atomizer.

Notwithstanding these remedies, the disease advanced steadily and rapidly; great increase in the diarrhœa, and gradual development of tubercles in the intestines, and finally in the peritoneum, took place. The abdomen became extremely distended and painful everywhere; emaciation was extreme, which no amount of ingesta seemed to check, and the patient sank exhausted about the end of January, 1870.

That form of phthisis with which you will have to contend as a rule in your practice, and which you have seen so frequently in the wards of our hospital, is comparatively slow in its progress, prolonged and indefinite in its duration, and admits, in many cases, of extension in the lease of life, and in a considerable proportion, by judicious management, of arrest and cure. You must have observed in all the examples of this form of phthisis we have examined together at the bedside, how carefully I have inquired into the antecedent history of the case—and the result has been, that seldom have we failed in the first place to discover a hereditary predisposition, wherever the intelligence or education of the patient would admit of rational answers. Next, we have discovered an indefinite period of ill-health previous to complaint of chest trouble—such as debility, with derangement of the digestive organs, indicated by dyspeptic troubles and irregularity of the bowels, most commonly diarrhœa. Then these patients can remember that they have been very susceptible to changes of temperature; they frequently “catch cold,” and have had more or less cough off and on. Under favorable circumstances this condition may prevail for years, when, from some change in the life of the individual, some exciting cause, the local expression of the disease becomes manifest in the substance of the lungs, and we have the characteristic features of pulmonary tuberculosis.

I have so often called your attention at the bedside to the diagnostic points in this malady—both its symptoms and signs, and in its various stages—that I shall not here refer to them again; only drawing your attention to the paramount importance of an early recognition of the actual existence of tuberculosis of the lung, as the success in treatment is proportionate and relative to the stage of progress at which our remedies are applied. It is needless to say, that the veriest tyro can recognize the advanced stage of consumption, when *cavity* exists, and when as a general rule the case is beyond the reach of medical art; but it re-

quires a deal of skill and care to decide with certainty as to the existence or not of incipient phthisis, when it is *all-important* to be correct. In doubtful cases, where the physical signs are not sufficiently pronounced to warrant a positive opinion, the greater stress must be put upon the history of the case, upon the prevalence or absence of hereditary predisposition, and the rational symptoms generally; and, where these are prominent, the probability of incipient phthisis had better be entertained in the mind of the attendant physician, which will suggest the appropriate management of the case, without necessarily any such admission to the patient himself, so that the depressing influences of unwelcome news may be avoided.

There is one symptom or accident which occurs at some time during the progress of a large proportion of these cases of chronic phthisis, and so frequently in some special cases as to characterize and individualize them and to merit our special notice. I refer to hæmoptysis, hæmorrhage from the lungs or spitting of blood, which being of repeated and frequent occurrence in certain cases, gives to these the cognomen hæmorrhagic. This is truly an unfortunate accident; from its profusion occasionally appalling even to the professional man. In some instances it happens as one of the earliest symptoms of tubercular deposit, and; when it is coupled with discoverable predisposition, must be regarded with anxiety, though positive physical signs may be absent. Yet it is well to remember that hæmoptysis is not *necessarily* a symptom of tuberculosis in its incipency, but may occur as the result of pulmonary congestion from *whatever* cause. So it must be determined that there is no impediment in such cases to the free circulation of the blood, from cardiac disease for example, or that the accident is not *vicarious* of an habitual hæmorrhage from some other part or organ—as, for example, long established issues or fistulous tracks which have suddenly and recently closed, or bleeding hæmorrhoids, or else the menstrual discharge. These possible causes must then be carefully considered

before the occurrence of hæmorrhage from the lung can be justly estimated and its exact significance appreciated, especially in those cases where it happens early and constitutes the most prominent feature. I remember to have had under my care, some years ago, a rather delicate woman, in whom there occurred a considerable hæmoptysis almost regularly every two or three months for a year or more, and yet without any apparent injury to the lung, as she is at *this time* in good health. At the time when these hæmorrhages took place, there was great irregularity in the menstrual flow, with dysmenorrhœa, etc. In another case, coming under my care, of a young lady, within the last eighteen months there have been repeated hæmorrhages from the lung connected with dysmenorrhœa (that form in which there seems to be some obstruction to the escape of the secretion from the womb), which have altogether ceased in the last six months, while the menstrual trouble has at the same time much diminished. In this case the accident naturally excited much alarm and anxiety in the family; but as physical signs were altogether negative, and we had an explanation of the hæmorrhage in the menstrual derangement, a favorable prognosis was ventured and has been fully realized. These cases I mention to you to show that, while due importance should be attached to so truly alarming a symptom, yet it should not *alone* form the basis of a diagnosis.

In these early cases of hæmoptysis, the immediate cause of the hæmorrhage may be fairly presumed to be due to localized or circumscribed congestion in the substance of the lung, and consequently the loss of blood is rarely profuse or immediately fatal; while, at a later period, being commonly brought about, in the progress of the ulcerative process, by the destruction of a blood vessel, the hæmoptysis not unfrequently hastens the fatal termination of the case.

The following is a good illustration of that class we term hæmorrhagic, and very interesting and instructive, as will be seen on account of its complications and the sudden and unusual mode of termination.

CASE 7. Miss T., a young lady aged about 23 or 24, was taken sick about January 1st, 1868, with what appeared to be an acute attack of dysentery. She had previously been considered to be in good health. She presented that appearance from her "embonpoint" and rosy cheeks. Her family history was bad; one brother had died of phthisis pulmonalis; one sister had some scrofulous affection; another brother had hæmorrhage from the lungs, while she herself had spit some blood about a year previous to this date. Together with the bloody dysenteric discharges, there were fever and pain on pressure along the course of the large intestines.

Prescribed opium and acetate of lead; and, under this medication, the dysentery was soon arrested, when she was taken with hæmoptysis, coughing up about half a pint of bright red blood.

On physical examination, percussion gave dullness decided under left clavicle, with increased vocal resonance; rough respiration and prolonged expiration on auscultation at the same part; some moist râle could be heard in the same region during the escape of blood and for some days after; she complained of pain at the same spot, and from this time on was troubled with cough, but with little or no expectoration.

During the next three or four months, she had frequent attacks of hæmoptysis, the quantity of blood varying from one to eight or ten ounces. Alternating with these, she had numerous hysterical turns—sometimes convulsive, at others comatose in character. From these she was easily aroused, however alarming and serious in their general aspect.

From time to time, physical examination of her chest was made, and progress in the tubercular deposit was apparently very slow, the area of percussion dullness being slightly extended, with no signs of softening.

About the first of May she began, in addition to her other troubles, to suffer from nausea, and not unfrequently omitted her food soon after eating. On the 15th of May, she complained of a most violent headache on the right side of her head, and the next day was taken with a *real* convulsion of the left side of the body and right side of the face, which recurred from time to time during the next two or three days: there were counted in all between eighty and ninety distinct convulsions. In the intervals, she remained unconscious, and paralyzed on the side convulsed, until two or three hours before death, when she became completely sensible, but from hemiplegia of the tongue, articulation was extremely indistinct.

No *post-mortem* was permitted; but the sudden, fatal termination, was doubtless due to tubercular deposit within the cranium, which had been probably progressing hand in hand with that in the lung, until from its extent it exhausted the accommodating power of the brain and produced the ordinary effects of irritation and pressure upon the nervous centres—viz., convulsion and paralysis.

This, as you see, was an exceedingly instructive as well as interesting case, from the various complications and from the exception to the ordinary mode of termination. The deposit or growth of tubercles within the cranium, especi-

ally involving the membranes of the brain, is sufficiently common in early childhood, but at a more advanced age becomes very rare indeed. The insidious and gradual manner of the deposition is not apt to give rise to very prominent or decided symptoms in such cases as the one here recorded, both on account of the accommodation afforded by the brain to the intrusion and encroachment of the morbid deposit, and because the evidences of brain trouble are likely to be masked by the morbid process in the lung. Hence, the formidable cerebral complication could not have been suspected or recognized until by accretion the morbid material had passed beyond the limits of endurance, and so exercised a mechanical and fatal influence.

*PATHOLOGICAL EFFECTS UPON THE BRAIN AND
SPINAL CORD OF MEN EXPOSED TO THE ACTION OF
A LARGELY INCREASED ATMOSPHERIC PRESSURE.*

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Incidentally to the building of the Mississippi Bridge at St. Louis, quite a number of men engaged in the work at the piers have been suddenly taken down with paraplegia and even graver symptoms. Four of them have lost their lives within a few days after being attacked. Naturally, the professional mind has been greatly exercised as to the nature of the complaint and its proximate cause or causes.

From official and other investigations it appears that the laborers, in digging out the sand from the bottom of the great river for the purpose of laying the foundations of the piers, and being surrounded by a so-called air-chamber, with an atmosphere of more than double and triple its ordinary weight, have, on returning to the surface, been immediately taken sick and disabled; that most of the patients more or less rapidly and completely recovered, and that a

small percentage died, exhibiting symptoms of intense inflammation of the brain and spinal cord and their membranes.

To those not personally acquainted with the locality and particular condition of the work, a brief sketch of the structure may not be inopportune :

The three immense spans of the bridge are to be supported by four piers and abutments, whose foundations are to be laid upon the rock which underlies the bed of the river, at a depth of seventy-eight and ninety-nine feet respectively, for the two channel piers, below the ordinary low-water mark.

The foundations of the western abutment and of the two piers have now been successfully laid upon the rock, and it now only remains to construct the eastern abutment, which, as we are informed, is to be built in the same manner as the piers.

The two piers have been built within floating coffer-dams made of boiler iron, and extended by the addition of new plates at the top as fast as they have been submerged by the increasing burden of masonry. Below each coffer-dam is an air chamber, of the full area of the work, nine feet in height, and open at the bottom like an immense diving bell. The sides of this air chamber are of very thick iron plates, strengthened by firm angular braces. The roof of the chamber is also of heavy iron plates bound by massive iron trusses, which are themselves supported from below by two longitudinal partitions of heavy oak timber dividing the air chamber longitudinally into three long and narrow compartments. Upon this iron roof or ceiling of the air chamber the solid masonry of the pier is laid, the buoyancy of the whole work being regulated by pumping the necessary quantity of air into the chamber beneath the pier. On reaching the sandy bed of the river the work was continued by digging out the sand and removing it from the air chamber by means of sand pumps, thus allowing the coffer-dam, with its superincumbent

weight of masonry, gradually to sink deeper and deeper until it now rests upon the solid rock. The foundations were then completed by filling the air chamber with concrete.

Such is briefly the plan followed by the engineer in this truly stupendous work ; it remains to describe the manner of entering the air chamber during the progress of the excavation, and the conditions under which the laborers worked.

As has been already stated, the rocky bed of the river at the site of the eastern pier is about one hundred feet below low water mark, the depth of water being, however, but about twenty feet. The coffer-dam, with the pier resting upon it had, therefore, to be sunk about eighty feet through the sand in order to reach a solid foundation. In order to exclude the water during this stage of the work, it was found necessary to maintain the pressure of air with in the air chamber precisely as in a diving bell submerged to the same depth ; the laborers have, therefore, towards the end of the excavation, been working under an atmospheric pressure of about sixty pounds to the square inch, or about four times the normal pressure. To gain admittance into the air chamber the workmen first enter a small chamber called an "air lock," into which the condensed air is admitted through a small cock until an equilibrium is established ; in coming out the order is reversed.

The very rapid passage from the external air into the condensed atmosphere of the air chamber is attended with many inconveniences, so that the workmen have learned to admit the air slowly into the lock. In coming out, however, they have occupied much less time than in going in, principally because the *immediate* effects of the transition to the rarer atmosphere are less marked.

The first effect of the air chamber manifesting itself indiscriminately upon every one, is a disagreeable pressure upon the tympanum. If the passage of the Eustachian

tube is not obstructed by catarrhal swelling of the mucous membrane or by mucus, relief may be instantaneously obtained by forcing air into the tympanic cavity until the pressure upon the drum is balanced by atmospheric counter-pressure. In cases of tubal obstruction, laceration of the tympanic membrane is inevitable, and has accordingly taken place in quite a number of instances.

Respiration is next seriously interfered with. A sensation of great weight prevails, which the exposed try to relieve by frequent and laborious breathing. This condition, however, lasts but a few minutes, and ease ensues. The action of the heart becomes agitated, the pulse more frequent, whilst lessened in volume and force; by degrees the pulse assumes its natural proportions, or nearly so. In this respect some individuals are differently affected. With some the pulse remains accelerated until they leave the air chamber, more particularly with those suffering from affections of the lungs. The speech is heavy and husky, with a nasal twang, which continues so with some persons for some time after they have emerged from the deep.

Most persons get readily accustomed to these changed conditions of animal life, and perform their task with remarkable good humor and exhilaration. There are still men in the employ of the bridge company who have been at work ever since the commencement of the enterprise without any apparent detriment to health. Many of the laborers have however dropped out of line more or less injured. Even casual visitors, who have stopped but a few minutes in the air chamber, have been sick for a few days.

The physical disturbances within the air chamber are, however, not to be compared with those often observed when the working men return to the surface and become exposed to the ordinary atmosphere. The ascent takes from 10 to 15 minutes. The returning laborers have invariably a pallid and sallow appearance. Their muscular powers, more especially those of the legs, seem to be lessened. Very soon pains set in in all parts of the body,

which of course vary in degree. There is a general hyperæsthesia in the lower half of the body, accompanied by a sensation of numbness. In some this condition may again disappear, in others the muscles of the legs lose their power more or less completely, and being unable to sustain themselves, the patients sink to the ground. With most of the patients this is the prominent and invariable clinical feature; in others graver symptoms are superadded, as, for instance, a painful constriction around the body, particularly in the epigastric region; involuntary movements not unlike those observed in chorea; muscular rigor and transitory lock-jaw, bleeding from the nostrils and lungs, etc. Many of the patients were sent to the City Hospital, where I had opportunities of clinically examining them. As already remarked, the cases vary greatly in extent and intensity. But the same character of lesion prevails in all, without exception.

Paraplegia is well marked in every instance, from a light paresis of motor powers to perfect paralysis of both motion and sensation. In the former reflex action may be readily excited, but in aggravated cases there is no vestige of nervous excitability left. Notwithstanding the partial or total loss of sensation, shooting pains from the spine downward are sometimes felt. Numbness usually prevails, pain and hyperæsthesia cease entirely in the completely paralyzed extremities.

The spine is always tender, pains in the muscles of the chest and shoulders continue for quite a number of days and are often the last symptoms to disappear. The patients may have succeeded to void their bladder once or oftener, soon after returning from the air chamber, but that organ soon becomes involved in the paralysis, and loses its expulsive power. In the beginning the urine is clear and of ordinary composition, but in the course of a day or two it undergoes alkaline decomposition, and often contains blood.

Ordinarily the patients are free from fever, breathe easily, rest well and enjoy good appetite. In aggravated cases the clinical aspects are proportionately changed. The paraplegia is complete to the exclusion of reflex excitability. Sensation is also lost, and the patient may be scalded or burned, as in fact some have been, in attempting to revive them, without any impression whatever.

The expulsive power of the bladder is so completely destroyed as to require the constant use of the catheter. A few hours' retention suffices to bring about alkaline decomposition of the urine, which result is more rapidly induced when the latter contains blood in large quantity.

The abdominal walls are usually drawn towards the spine, and occasionally quiver. In one or two cases the patient exhibited the position of opisthotonos, although no contraction of the dorsal muscles could be recognized.

Respiration is invariably undisturbed. Fever rarely supervenes, and its appearance is almost always a sign of fatal termination. The symptoms preceding death show that the upper part of the spine and the head are likewise involved. The patients become apathetic, stupefied, unconscious, comatose, exhibit quiet delirium, hiccough, stertorous breathing, automatic movements of the arms, and throw themselves about so that they are kept in bed with difficulty. The pulse and temperature are by no means excessive. The former rarely exceeds 105, and mostly varies between 90 and 100. The pupils sluggishly respond to light, become stationary and dilated towards death.

About 25 patients had entered the City Hospital when I decided upon and commenced this *preliminary* communication. A few of them recovered within a week; others remained at the institution about a month before they had been sufficiently restored to return to their avocations. Some are still under treatment, and four have died. Most of the patients are between the ages of twenty and thirty, strong and well built men, the majority of them being

Germans and Scandinavians. As far as I have been able to ascertain, they were all well until they engaged in the aforesaid work.

The first post-mortem examination was made on the 20th of March, upon James Moran, 35 years old, Profs. HODGEN, BAUMGARTEN, BRIGGS, Dr. CLARK, and the staff of the Hospital being present.

Moran had been admitted on the 14th, at 9 o'clock P. M., and died on the 19th, at noon. It appeared that Moran had gone down to the air chamber for the purpose of ascertaining whether he could stand the pressure of the atmosphere therein, before engaging to work. He descended at 10 o'clock on the 14th, remained for two hours without performing any labor, and left with the watch. On reaching the open air, he was seized with pain, soon followed by paraplegia, comprising the bladder; presented the usual symptoms during the five days of sickness, preserved his consciousness till 12 hours before death, when coma supervened. The body was that of a powerful man, weighing probably 175 lbs. Post-mortem examination was made 22 hours after death. Although the prevailing temperature was rather cool, *rigor mortis* was very strongly marked. The posterior surface of the body exhibited large patches of hypostatic sugillations.

The spinal column was first opened. In dissecting down through the dorsal muscles, the veins were found to be very numerous and distended with dark and tarry blood. The vascularity signally increased with the approach to the spine. On removing the vertebral arches and exposing the dura mater, the cellular tissue exhibited great vascularity, and a reddish, gelatinous infiltration. The dura mater was separated from the spinal cord by a copious collection of serum, fluctuating on pressure and changing its level on altering the position of the body. The serum was not collected and measured, but estimated at about two ounces. Leaving the spinal cord and its membranes in situ, we proceeded to the cranial cavity, and removed brain and

spinal cord together. The arachnoid membrane of both brain and cord was found intensely vascular; its vessels of larger calibre; the structure succulent and at various places of the brain changed in thickness and transparency, and covered with inflammatory products of a whitish gray hue, besides being raised off by subarachnoid serous infiltration. The consistency of the substance of both organs was on that occasion but superficially inquired into, inasmuch as a microscopic examination is purposed. In pressing on the spinal cord some elastic resistance was observed, which proved to be serum in its canal. So much had accumulated in that space that being pressed from two opposite directions, it would distend the cord cylindrically. Near the cauda a moderately sized vein was completely thrombosed.

The right side of the heart was filled with coagulated fibrine, which extended into the pulmonary artery, whereas the left side contained some blood of a dark appearance not coagulated. The lungs were well inflated, anteriorly they were of normal color, but posteriorly darkened from hypostasis. The kidneys, slightly enlarged, showed venous congestion. There was some hæmorrhagic infiltration about the junction of the cortical and medullary substances. Ureters normal. About the bladder and extending below the peritoneum backward and upward, there was extravasation of blood without any mechanical lesion. The bladder itself, although containing but a small quantity of urine mixed with blood, was collapsed, and from previous distention far larger than usual. The mucous membrane, thickened, softened and discolored by hæmatine, was covered with urinary salts. Intestines, liver and spleen were marked by hypostatic conditions, with extravasation of blood.

It will not be necessary to render full reports of subsequent autopsies in which I have been engaged, inasmuch as the results differed in but few details. In all, the vascularity of the membranes of the brain and spinal marrow

was most strikingly displayed. There was, however, a marked difference in the quantity of floating serum, whereas the subarachnoid infiltration was largely augmented in all. The substance of both brain and spinal marrow were signally changed, and in one case the latter was entirely converted into a pulp to the extent of about two inches, corresponding to the lower dorsal vertebræ. Obviously more advanced inflammation had supervened. With the exception of the first case, I did not find any fibrinous agglomerations in the right ventricle of the heart, the blood being of the same tarry appearance as elsewhere. The kidneys were in the main as in the first case, but the extravasation of blood into their parenchyma less extensive; the bladders were also collapsed, but there was less extravasation of blood below the mucous and peritoneal coats. The livers were rather below the ordinary size, but the spleens were found to be slightly enlarged and softened.

The microscopical investigations, in which my friend, Prof. BAUMGARTEN, is diligently engaged, thus far show that the softening of the brain, at least in the cases examined, is probably due in part to inflammatory processes.*

From the post mortem evidences interesting disclosures in reference to the pathology of the brain and spinal marrow may confidently be expected. That the brain and

* In the spinal cord the softening occurs in circumscribed portions of the columns; for instance, in one case, the posterior columns, posterior cornua of the gray substance, and the lateral column of one side, were softened throughout the length of the lumbar segment, while in a less extent the anterior cornua and limited portions of the anterior column were also involved. The softened parts are of a creamy consistence, of a dirty white color, usually sharply set off against the more normal portions, and in them it is no longer possible to distinguish between the white and gray substances. In the brain, the softening seems not to be so strictly localized, as in the medulla; the parts are succulent, dirty grayish-white color, obliterating in a measure the difference of color between the white and gray substances. The microscope shows the occurrence of a considerable number of large roundish, granular cells, some of which are filled more or less densely with fat globules (fatty degeneration)—cells easily distinguished from the nerve cells as well as the elements of the neuroglia.

spinal marrow are the focus of the disease cannot be denied by any one who has paid fair attention to the prevailing symptoms of the so-called bridge cases. Both the seat and the character of the affection are fully determined by the autopsy. In fact, there is a singular conformity between the clinical and anatomical appearances, the noted differences pertaining merely to the extent and intensity of the trouble.

To determine the proximate cause of the pathological phenomena would be of as much interest in a scientific point of view, as of practical bearing in furtherance of the architectural enterprise.

Physiological and practical experiments demonstrate that men can live in and, in a measure, get accustomed to an increased atmospheric pressure varying from 20 to 50 lbs. or more to the square inch. The inconveniences engendered thereby are in the main fully explained, and are of but short duration. They are rarely so great as to interfere with the duties of the workmen. It is assumed that the pressure upon every part of the body is equal, and that the gases contained within the organism and carried by the liquids are of sufficient density to counterbalance atmospheric pressure. Whether this supposition applies equally to the extraordinary pressure within the air chamber, or whether the air in the body is unable to cope with the outside pressure, is open to question. Considering the fact that animal life can scarcely be supported in a highly rarified atmosphere on high mountains and in balloon ascents, it seems to follow that there exists a disparity between the air within and that without the body, at least under extraordinary conditions, and the equilibrium between the two can not be so readily effected. If this be so in one case, it must be so in another. Now, it must be admitted that the contrast between the great pressure within the air chamber and the ordinary atmosphere without, is infinitely greater than exists between the air in valleys and mountain peaks. And in going from valley to mountain the change in the air is not so abrupt as is that which is encountered in ascending

from the air chamber. Indeed, some of the phenomena characterizing the ascent from the air chamber to the surface are of the same nature as the ascent of mountains, as, for instance, muscular weakness, rapid breathing, and hæmorrhages from nostrils, lungs, kidneys, etc.

Next we have to consider the air in the caisson in its chemical relation to animal life. The quantity of oxygen is proportionately increased with the condensation of the atmosphere. This is not only *a priori* correct, but it is proven: first, by the absence of asphyctic symptoms; second, by the ready supply of respirable air; third, by the exhilarating effects upon the persons within the air chamber, and, in fine, by the re-igniting of candles just blown out.

It is a well known fact that gases in a compressed state, and of a low temperature, are the more freely absorbed by liquids. Taking these facts as premises, it would necessarily follow that hyperoxygenation, more perfect combustion, and greater waste of the organic structures go on in the air chamber, than in ordinary atmosphere. As the ulterior results of this increased process of consumption of the organic substance, the blood not only carries more carbonic acid, but likewise other effete material. As long as the hyperoxygenation prevails these substances are eliminated from the system by the respiratory process, and the well being of the exposed is not materially disturbed. On the moment, however, the latter leave the condensed atmosphere, the elimination is necessarily more or less reduced. Probably other organs than the lungs may assist in relieving the body of the effete material it carries, but it may likewise be retained more or less completely.

This condition then forms the second and probably the most effective morbid agent, a sort of poison to the system. Although the condition of the blood in all of the bodies I have assisted in examining is indeed such as to correspond with the deductions made, it must, however, be likewise stated that during life there is not a single symptom indicative of hyper-carbonization, or genuine asphyxia. I am unable to explain why the spinal cord, and more

especially the lower portion of it, should be the chief recipient of the poisonous effect, as in fact this is equally impossible with most, and particularly the vegetable poisons, why they concentrate their effect upon particular organs. For the microscopic examinations have already disclosed that there is a high degree of inflammatory softening in the spinal cord, whilst the changes in the brain are not of so advanced a character.

The clinical and anatomico-pathological facts elicited tend to show that in the lighter cases there is nothing more than a state of hyperæmia of the spinal cord, which probably relieves itself by a transfusion of serum within the arachnoidal cavity (hydrorachis), the cerebro-spinal axis, and below the arachnoidal membrane (*œdema medullæ spinalis*). This view is supported by the mildness of the symptoms and the short duration of the affection. The rapid disappearance of paresis and paraplegia could be explained in no other way.

In another class of cases the complaint seems to assume a more active character, advancing to irritation of the spinal cord and its membranes, from which the peculiar pains described, muscular rigor and choreal agitations are derived. In still others, structural changes become established in the spinal cord, either limited to this organ, of which there is one case at the hospital, or the disease ascends and eventually involves the entire nervous centres, terminating fatally.—

I am fully aware of the imperfections of this communication. The subject is indeed both so interesting and so important as to deserve a more thorough inquiry than I have been able to give to it, and a more proficient pen in communicating the results to the profession. However, with the exception of the resident physician of the City Hospital, Dr. CLARK, I have seen as much and gone as deeply into the inquiry as any one, and as circumstances would permit, and I thought that in the absence of something better, this communication might be allotted a modest place in the medical press.

Reviews and Bibliographical Notices.

THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION. Vol. XX. Philadelphia, 1869. 8vo., pp. 853.

The meeting of the American Medical Association, in 1869, was held at New Orleans; and although the Association does not seem to wield as commanding an influence in the profession generally as we think it desirable that it should, most of our readers are familiar with the proceedings of the last session. We, therefore, pass over the minutes of the meeting, as well as the business reports, in silence, with a reference only to the very thorough report of the Committee on Medical Education. This Committee is renewed from year to year, and the reports of the various chairmen have usually been able documents, none more so, perhaps, than the one before us; nevertheless no practical good seems ever to have accrued from them. Were the present report heeded, and its suggestions followed, the profession would in due time reap incalculable benefits from the progress initiated. The reforms proposed by it are exceedingly moderate, simple, practicable, and what reasonable objections could be brought against them we can not imagine. The Committee hold that legislation on the subject of medical education on the part of the States is impracticable; that the profession itself must carry out measures of reform; that changes must be made slowly, and progress can only be gradual; that it is the duty of the Association to act in this matter by exercising the power to govern and regulate the action of medical schools. The reforms in education which the Committee think necessary to be *first* carried out are: the requirement of a preliminary education (of a very moderate degree), and the division of the term of study into two or more successive courses, with an examination at the end of each.

The volume of Transactions for 1869 is richer in valuable scientific communications than many of its predecessors. We will advert to the more important of them.

Dr. OSBORN's observations on a peculiar appearance of the tongue in malarious diseases remind of a similar, but not identical, experience by Prof. CURTMAN of this city, which is laid down in a contribution to this Journal (Vol. VI, N. S., p. 398).

Dr. STEPHEN ROGERS has an article on the prophylactic and therapeutic uses and abuses of quinia and its salts. The *uses* are protective, preventive, and curative, in miasmatic fevers, and miasmatic affections not febrile; besides these, almost only "in erysipelas and its allied diseases, puerperal metritis and peritonitis." On the other hand the author considers it as *abuses* to apply quinine to typhus and typhoid, and yellow fever, as well as indefinitely as a "tonic." In regard to the first mentioned disease, he takes into account merely the abortive treatment of quinine, but makes no reference to its symptomatic use as an antipyretic, as demonstrated and recommended by LIEBERMEISTER. Besides these, there are abuses of administration, chief among which is the exhibition of too small doses. "The minimum . . . is four grains. I regard five to eight grains as the medium and usual dose, and ten to fifteen as the maximum. . . The intervals between these doses should be from two to twelve hours, according to the object sought to be attained." Hypodermic administration, as well as the use of the tannate, are likewise abuses.

The Report of the "Committee on the Relations of Alcohol to Medicine," by Dr. JOHN BELL, is a total abstinence paper, which differs from those commonly met with in the religious and secular press only in its more strictly physiological train of thoughts, (though the author can not refrain either from poetical quotations, or from introducing the inevitable chapter on "alcohol as an inciter to vice.") The relations of alcohol to therapeutics are comparatively best discussed.

Prof. JOSEPH JONES, of New Orleans, has a long essay on *mollities ossium*, chiefly from a chemical point of view.

Prof. EVE's description of his canula needle for applying ligatures and stitches has already been published elsewhere in this Journal (Vol. VI, N. S., p. 169).

Dr. WHITEHEAD, of New York, reports on the best method of treatment for different forms of cleft palate.

Dr. SCHUPPERT, of New Orleans, in remarking upon some points referring to success in the operation of vesico-vaginal fis-

tula, denies that success depends essentially on the material used for sutures, or in the particular mode of their application, provided only the surgeon brings a sufficiently large raw surface of the edges of the fistula in coaptation. He also advocates that the usual tormenting after-treatment, especially the permanent introduction of the catheter, be abandoned.

Dr. EDWARD CURTIS, U. S. A., committee on the cryptogamic origin of disease, very ably and clearly states the questions involved in this subject, and the manner in which alone they can be answered by experimental investigation. This investigation, commenced by himself and Dr. BILLINGS, has not yet progressed sufficiently to allow expressions of opinion. We are happy to find Dr. CURTIS engaged in this line of investigation, and look to some new light on the obscure subject.

Dr. THOMS presents a chart showing the relation of mortality in the different wards of New York to the degree of crowding in dwellings, and the number of cellar tenements.

Prof. SAYRE, of New York, relates three cases of lead palsy in consequence of the use of "Laird's Bloom of Youth."

There are two prize essays. The first, "Quinine as a Therapeutic Agent," by Dr. S. S. HERRICK, of Louisiana, is certainly a creditable compilation, but it contains nothing new, and why it should be a prize essay we are at a loss to discover. That of Dr. ROBERTS BARTHOLOW, on the contrary, treating of "The Physiological and Therapeutical Uses of Atropia and its Salts," is a work of considerable merit, containing both new investigations and new ideas. Its best points are the comparisons instituted below the actions of atropia and some allied drugs, physostigmia, strychnia, prussic acid, morphia. The first part discusses the physiological effects of atropia and the substances mentioned, the second part the therapeutical application of atropia alone and in combination.

A paper by Prof. JONES, on albinism in the negro race, closes the list of scientific communications.

A complete list of the permanent members of the association is appended to this volume of the Transactions. G. B.

BELLEVUE AND CHARITY HOSPITAL REPORTS: 1870.
New York: D. Appleton & Co., 1870 8vo., pp. xviii, 416. Price, \$4.

[For sale by Keith & Woods, Booksellers.]

More than two years have passed since this Report was first announced (about simultaneously with the Pennsylvania Hospital Reports, two yearly volumes of which have already been issued,) and the long delay had permitted our favorable expectations to attain a degree of confidence which it is rather painful to have rudely shaken. Yet this is precisely our feeling: the volume has thoroughly disappointed us.

Bellevue Hospital is, if we are rightly informed, the largest—certainly the most important—institution of its kind in the United States. Its staff is picked from a very extended and able medical body, and numerically larger than that of any other American hospital, and counts some of the most accomplished men of our country. In view of the opportunities afforded by this institution, the array of talent engaged in its work, and the number of probable contributors to the enterprise, we had a right to expect that the volume now offered to the profession should be the highest performance of American medical study. The facilities for the pursuit of medical science in this country, are not many; but in Bellevue Hospital we have one of the very best possible nurseries of original investigations—at least in the practical branches. The gentlemen connected with and controlling it owe a duty to science which either they did not attempt, or at any rate failed, to fulfill.

We do not wish to be understood that the "Reports" contains nothing good or valuable, but that it contains not enough to sustain the fair reputation of the institution from which it emanates, or to meet just expectations. The most important of the fourteen papers are, one by Prof. ISAAC E. TAYLOR, and four by Prof. AUSTIN FLINT. The former, *On Amputation of the Cervix Uteri in Certain Forms of Procidencia*, illustrated by a good chromo lithograph and very fair wood-cuts, opens the volume. It is a valuable contribution to the surgery of the uterus, embodying the history of nine cases, from which the author arrives at the conclusion, "that the affection designated under the names of prolapsus or procidentia of the uterus and which appears to be completely out of the pelvis and is exterior to the vulva, is rare;" "that there exists very seldom a true hypertrophic elong-

ation or pathological change of the supra-vaginal portion of the cervix; but that there is an elongation which . . . is principally in the *isthmus* or intermediate part of the supra-vaginal portion of the cervix; . . . that the fundus or body of the uterus is usually found retroverted or retroflexed, with the cervix in part external, or, as is not infrequent, the uterus is procident, and retroflexed *in toto* externally; that the infra-vaginal portion of the cervix is sometimes hypertrophied, but that it is in many instance a true and *complete eversion* of this part; . . . that it is not necessary to remove as large a conical part of the cervix as described by M. HUGUIER, but the simple circular method will, in some cases, suffice; . . . that the only operation which fulfills the principal and correct indications in *this affection*, for the radical cure of this affection, is the amputation of the cervix uteri."

The second paper, by Dr. AUSTIN FLINT, entitled, "*On the Analytical Study of the Pulmonary Physical Signs, &c.*," is about the clearest exposé of the characters of auscultation and percussion signs we have ever had the good fortune to read. "The completeness of auscultation and percussion requires," among other things, "that the differential characters, by means of which the signs severally may be recognized and discriminated from each other, shall have been rendered as distinct, simple and reliable as possible." After considering the true sources of the differential characters of the different signs, which he finds, not in analogies to extra-thoracic sounds, nor in the impressions they at once convey of the existence of certain morbid conditions (*e. g.*, cavernous respiration), but in those qualities that pertain to all sounds wherever produced—he goes on to describe briefly the various signs and their distinctive characters in accordance with the petition that they should be "distinct, simple and reliable."

The other papers of Dr. FLINT are on "*The Mitral Direct and the Tricuspid Direct Cardiac Murmur*;" "*On the Mode of Obtaining the Venous Hum, and the Value of this Physical Sign*;" and "*A Clinical Report Based on an Analysis of One Hundred and Two Cases*" of *Bright's Diseases*. The latter paper affords a wide field for the searching student who may refer to it. A respectable number of individual facts are ferreted out with great diligence and circumspection, but the importance of the deductions is not always as great as the figure 102 in the

heading may lead the reader to expect, because many of the histories are imperfect.

DR. BURRALL, the author of the article "*On Entire Excision of the Os Calcis*," appears not to belong to the staff of the Bellevue and Charity Hospitals, and the fact of admitting his article among what purport to be reports of these institutions, betrays weakness on the part of the latter. The article is, however, a good one in both literary and practical points of view, and does not require the official shield of the Bellevue and Charity Hospitals to make it acceptable to the profession. It is of the nature of a review.

Prof. SAYRE'S article is a contribution of very questionable value, and we are quite sure of having seen much of it in print before.* The two titles leave us in doubt whether it treats of "*Sprained Ankle*," or of "*the Serious Consequences which result from the Neglect of Slight Injuries of the Ankle Joint*;" more probably it deals with "slight sprains," which are not sprains, but cases of caries. Some of the cases (*e. g.* Case iv) are not to the point at all, illustrating merely the treatment of caries. The point of the paper is, that apparently insignificant injuries of the ankle may lead to serious results, and that it is necessary "to give immediate and positive rest to the part *until all pain shall have subsided*;" unluckily, Case v, though it seems to have met the requirement, inasmuch as "the pain soon subsided," ended in "suppuration *and* caries." Such papers are calculated to create distrust in the literary fertility of Bellevue Hospital.

In the next article the same author describes "*A Method of Dressing Fractured Clavicle*," which he does not claim as original with himself. It is intended to meet the generally accepted indications, on the execution of which in the case of the clavicle every surgeon probably has his own notions.

Prof. HAMILTON'S "*Cases Illustrating Strangulated Abdominal Hernia, etc.*," is a record of much and valuable material, but wants generalizations and deductions to be practically useful,—the two pages at the end amounting scarcely to an apology for

* On referring, we find an article entitled "*On the mechanical treatment of chronic inflammation of the joints of the lower extremity*," etc., in Vol. xvi of the Trans. Amer. Med. Assoc., 1865, from which figures 18-22 are taken, and Cases iii, v and vi are literally copied, together with their illustrations (some of them much the worse for wear and tear), all of which amounts to just one-half of the present paper.

their absence. The utility of the paper resides chiefly in the aid it will give to statisticians and writers on the subject.

There follow statistical papers on the amputations performed at Bellevue Hospital, and on cases of anæsthesia in which Dr. GOODWILLIE'S inhaling apparatus was employed. Dr. SOUTHACK'S "*Report on the Pathological Department*" contains valuable material pertaining to morbid anatomy.

Prof. HAMMOND contributes an instructive paper "*On Some of the Effects of Excessive Intellectual Exertion.*"

The volume ends (as if for the purpose of securing a good impression on the reader as he finally closes the book) with "*The History of Eight (Nine) Cases of Ovariectomy,*" by Prof. THOMAS, carefully written, like all his contributions to science, but still brief, and prefaced with a few remarks on the legitimacy of the operation and the "influences at work at present which tend to keep up the mortality attendant upon this operation," among which he counts the fact that the operation is often performed by men inexperienced in the diagnosis and treatment of ovarian tumors.—

We have devoted, perhaps, undue space to this volume; but the importance which *ought* to attach to the Reports of an eminent establishment like the Bellevue Hospital seemed to call for an extended notice, the more so as we hold, and must reiterate the opinion, that though some of its contents are very valuable, the whole is by no means commensurate with what the profession had a right to expect from Bellevue Hospital. G. B.

A TREATISE ON INTRAOCULAR TUMORS. By H. KNAPP, M. D., late Professor of Ophthalmology in Heidelberg. Translated by S. COLE, M. D. New York: William Wood & Co. 1869. 8vo, pp. 319, with 16 lithographic plates, one of them in colors.

This is a translation of the German edition of 1868. It embraces detailed reports of fifteen cases of tumors originating within the eye-ball, of which seven presented the characters of *glioma*, and eight of *sarcoma*.

Under these two heads, of *glioma*, originating in the retina, and *sarcoma*, proceeding from the choroid, are included all the

cases of intraocular tumor which KNAPP has observed, and he asserts that this is also true of all published cases which are adequately enough reported to admit of classification. It has been already shown that true *carcinoma*, originating within the eye-ball, is an extremely rare disease, but, unfortunately for the patients, both glioma, under its older names of *encephaloid* and *fungus haematodes*, and sarcoma, in its very common aspect of *melanosis*, will be recognized by the reader as familiar types of malignant tumors.

The study of these growths in the eye, as KNAPP has well observed, is of especial interest and importance, as well from the possibility of observing them by means of the ophthalmoscope almost from their very commencement, as from the fact that they are isolated, as it were, from the surrounding orbital tissues by the dense fibrous capsule of the sclerotic, thus materially increasing the chances, at least in the case of sarcoma, of completely eradicating the disease by the comparatively light operation of enucleation of the eye-ball.

KNAPP's fifteen cases confirm the generally received opinion that retinal glioma (encephaloid, fungus haematodes) is peculiarly a disease of infancy, while sarcoma of the choroid belongs as commonly to mature or advanced age. Of the six cases of *glioma* observed during life, there was fair evidence that in two the disease was congenital, and in the other four the disease was not detected until it had attained such development as implied the possible pre-existence of the tumor for months, or even a year or two. All six children died, from the immediate effect of the disease, at ages ranging from two years and three months to four years and one month. Of the eight cases of *sarcoma*, one, which followed an injury, occurred in a boy six years old, the other seven were in persons over thirty, and in four cases over sixty, years old.

The very early diagnosis of these tumors by the ophthalmoscope is extremely simple, provided only that attention is called to the eye at all. This is, however, rarely the case in *glioma*, on account of the tender age of the subjects and the absolute painlessness and absence of noticeable objective symptoms both in the very beginning and generally during many months of its growth. It is, in fact, only at a later period, when the eye-ball has become nearly filled by the tumor, or when it has given rise

to increased tension of the globe with attendant pain and inflammatory symptoms, that it is likely to be discovered, and its nature detected, too late to afford much hope of a cure by an operation. The only exceptions to this late detection of the disease, as reported by KNAPP, are two cases in which one eye had become conspicuously affected before advice was asked, and in which an examination of the other eye showed the same disease in an earlier stage of development. In one of these cases, examined eighteen weeks after birth, the disease was thus seen in quite an early stage, and the ophthalmoscopic appearances beautifully depicted in a chromo-lithograph (Tab. I). In *sarcoma* an early diagnosis is more common, simply because the disease occurs in persons old enough to notice and describe the visual disturbance and partial obscuration of the field dependent on the first encroachment of the growth upon the retina.

The prognosis in choroidal sarcoma is much more favorable than in retinal glioma, on account of the tendency of the latter disease to extend backward at an early period into the tissue of the optic nerve, and thence to the brain. In sarcoma, on the other hand, the disease may be oftener perfectly removed. Hence there are cases on record which may be accepted as permanent cures of *sarcoma* by operation, but very few of *glioma* in which it is even certain that life has been prolonged by surgical interference. Nevertheless, KNAPP's single case in which the enucleation of one globe, in an infant of eighteen weeks, was not followed by a return of the disease locally although the child died two years later from the development of the pre-existing glioma in the other eye, and SICHEL's case of spontaneous rupture and atrophy of one eye while the disease progressed to a fatal result a year later in the other, should encourage us to operate at the earliest possible moment, in the hope of better results. Had KNAPP removed both eyes in his case (No. 1) we can not help feeling with him that "the life of the child might possibly have been saved;" as for sight, that was in any event doomed to speedy extinction.

KNAPP's monograph, with its thoroughly studied cases, and recent able articles by HIRSCHBERG and v. GRAEFE, which appeared at about the same time as the German edition, in the *Archiv für Ophthalmologie*, Band XIV., Abt'g I., have greatly increased our positive knowledge of intraocular tumors.

The translation is neither to be commended for elegance, nor is it good English. The mechanical execution is quite satisfactory; the lithographic plates (printed in Germany) are excellent.

J. G.

ON THE WASTING DISEASES OF INFANTS AND CHILDREN. By EUSFACE SMITH, M.D., London, etc. Philadelphia: Henry C. Lea, 1870. 8vo., pp. 195.

[For sale by Keith & Woods, Booksellers.]

This book is an exemplification of two of the tendencies of modern medicine. In it a circumscribed field is purposely chosen that observation and labor may be concentrated upon it, as is done by the numerous classes of specialists. And in the second place, the facts connected with food and nutrition are subjected to close scrutiny, and the results that the author has obtained are insisted upon in the treatment of disease, both acute and chronic. In the case of children the rule cannot be applied that a certain old physician thought all sufficient for his patient: "If you find any kind of food disagrees with you, don't be such a fool as to eat it again," for young children frequently have no choice in articles of diet, being obliged to take improper food, while the nurse ascribes to other causes the resulting disorders.

When a mother can not suckle her child and a wet-nurse can not be procured for it, a problem is presented for which so many solutions have been given, that it is clear that no one of them is generally satisfactory. The infant is unable to eat solid food through the absence of teeth and through the absence of some of the ingredients of the saliva, which are not secreted in the first few months of its extra-uterine existence, to say nothing of the weakness of the muscles which would be called into play in chewing. But hunger will impel it to swallow a wide range of fluids that may be presented to it. In the ease with which it vomits nature affords a safeguard to some extent against improper food, which, however, often passes through the stomach and in due time we have the evidences of malassimilation and innutrition with colic, diarrhœa, convulsions, and a countless train of disorders; and the Medical Register sums up the whole story in a fearful array of deaths of young infants, a very large number of which is due to error or deficiencies in their diet.

Even supposing that the child to be brought up by artificial feeding is healthy, we have much to provide for. The soft

nipple of the mother with its continuous fresh supply through self-cleansing lacteal tubes must be imitated by art, and this has been tolerably well done. We must next cleanse the nutritive fluid itself, and must vary it with the age of the child, taking care that it is always fresh and always contains the proper nutritive material, while the supply of water must be sufficient without over-feeding.

In addition to the difficulties presented by this problem come the legion of others presented by the external conditions bearing upon the health of the young patient, and also by its own morbid tendencies and inherited or acquired diseases.

When the infant can not be suckled, Dr. SMITH prefers ass's milk as a substitute, but if cow's milk is used, it should be diluted during the first six weeks with an equal quantity of lime water, the alkali being added to make the clot of its caseine less firm when it is coagulated; or carbonate of potash, one grain to the ounce, may be used for the same purpose. The mixture is to be sweetened with sugar of milk or pounded lump sugar, to each six ounces as much "as will be taken up on the flat end of a teaspoon." At the age of six months he allows farinaceous food to be given, selecting by trial in each case a kind that is well digested, and saving LIEBIG'S "Food for Infants" for his last resource. At the eighth month he begins to give a little thin mutton or chicken broth.

If cow's milk causes indigestion and flatulence, he substitutes veal broth or combines with the milk LIEBIG'S food, for a few days.

We have given somewhat in detail the author's views upon this subject, because it has recently attracted unusual attention. That it is improper to give farinaceous food in the first few months of infant life is believed by many writers, but exceptions can be perhaps taken to ascribing so much importance to the agency of the saliva in changing starchy substances into sugar. They can certainly be taken to the statement of Dr. J. LEWIS SMITH, of New York, in his recent work on the diseases of children, p. 602, where he says the transformation of starch into sugar and dextrine is usually effected in the stomach. With regard to the degree of dilution of the cow's milk, Drs. MEIGS and PEPPER, in their book just published, adhere to the old rule of two parts of water to one of milk.

Dr. STEPHEN ROGERS, of New York, is emphatic in denouncing "the doctrine of dilute cow's milk as infant food, as one destitute of reason and extremely dangerous," but dwells upon the importance of giving water to the infant in warm weather before feeding it, and of supplying it with water while suffering with disorders of the bowels. Does he think that the undiluted milk given to the child will not mingle in the stomach with the water that the child has just drunk?

A method which seems well devised of treating the excess of caseine in cow's milk, is that advanced by Professor FALKLAND and Mr. LOBB: they remove the curd from the milk by coagulation and add the remaining whey with sugar to the milk to be given to the child.

Drs. PEPPER and MEIGS, from more than twenty years experience, have selected as the best substitute for the natural aliment, a mixture of gelatine or Russian isinglass, water, milk, cream and a little arrowroot, or any other farinaceous substance that may be preferred; and this they give, contrary to Dr. SMITH's principles, to infants less than a month old. Dr. ROUTH, however, who recommended pretty much the same mixture, states that the arrowroot is not given as an aliment,* but that it mechanically soothes the intestinal mucous membrane (?), and he quotes also an opinion of LANGENBECK's, that it prevents the formation of indigestible curds.

In cases of indigestion affecting children who have begun to take solid food, the problem approaches more nearly that presented by indigestion in adults, and we are obliged to treat the patients individually and experimentally; sometimes with bizarre results, as in the case of a three year old child, reported by Drs. MEIGS and PEPPER, whom they nourished for two weeks on raw oysters, soda biscuit and rennet whey.

But we must leave this subject, which is, as must be evident, a fundamental one in the book under consideration, treating as it does of atrophy, chronic diarrhœa and vomiting, rickets, congenital syphilis, worms, and the various forms of tuberculosis.

After observing the great space given in medical literature, of not a great while ago, to *tabes mesenterica*, it is instructive to

* In proof that arrowroot is sometimes nutritious to a young infant, we will cite the case of a child two months old, who, at the present writing, after many trials of various preparations of milk, has now been nourished for ten days solely upon arrowroot and has gained in weight upon this diet.

read the following passage, remembering that our author is a physician of dispensary experience in London, where the moisture added to the squalid pauperism of an immense city is particularly favorable to tuberculosis. After speaking of flatulence, he says:

It is of great importance to bear in mind this simple cause of the enlargement, for a big belly in a wasting infant is constantly attributed to mesenteric disease; and it is not uncommon to hear that a child has been given over for this supposed complaint, when he is in reality suffering from nothing else than bad feeding, with derangement of the bowels as its natural consequence. Setting aside the general rarity of mesenteric disease, and its extreme rarity in children under three years of age, there remains the fact that distention of the abdomen is by no means a necessary consequence of this disease. On the contrary, unless the glandular disease be great, the abdominal wall is more often retracted than expanded. It may become occasionally distended from flatus, as in all cases where the bowels are disordered, but the distention is in such cases independent of the affection of the glands, and is merely an accidental complication. If the increase in size of the glands is sufficiently great to produce a distinct tumor, the swelling is seated about the umbilicus, and does not occupy the whole abdomen. In all cases, therefore, where the belly is swollen uniformly, the probabilities are very strongly against mesenteric disease; and if no tumor can be detected on pressure in the situation of the glands, no foundation exists for attributing the enlargement of the abdomen to this cause.

The following method of examining the spleen will also probably be found interesting, enlargement of that organ being so common a disorder in the Mississippi Valley:

The fingers of the right hand are placed at the back, directly below the twelfth rib, and just outside the mass formed by the lumbar muscles; the fingers of the left hand are placed exactly opposite the former, in front of the belly; by pressing the two hands towards one another, the spleen, if it is enlarged, is caught between them.

On the whole the book does not strike us as presenting a great deal of original thought, but it will, doubtless, be found useful for reference by practitioners interested in the unpromising classes of disease of which it treats, and students desirous to obtain ready made prescriptions will find the sections on treatment bristling with them.

C. E. B.

MANUAL OF CHEMICAL EXAMINATION OF THE URINE IN DISEASE; with brief **Directions** for the Examination of the most common Varieties of Urinary Calculi. By AUSTIN FLINT, JR., M.D., Professor of Physiology and Microscopy in the Bellevue Hosp. Med. College, etc. New York: D. Appleton & Co., 1870. 12mo., pp. 76. Price \$1.00.

[For sale by the St. Louis Book and News Co.]

This manual grew out of an intention to "write a few simple directions for use" to accompany a set of test apparatus for urinary examinations, but the directions, "to be complete and satisfactory," have grown into a little volume for which the author deserves the gratitude of conscientious and painstaking practitioners.

The analysis of the urine, to be complete and entirely accurate, requires considerable chemical knowledge, much practical experience in laboratory work, and involves complicated processes and much expense of time and labor. On the other hand, a rough examination and superficial quantitative estimates, such as often yield the information sought to be obtained at the bedside, demand but little time and manipulation. There is, of course, a wide range between the two, and the skill, care, and time necessary to the examination vary according to the degree of accuracy desired. The author in general leans to the side of accuracy at the expense of time, but endeavors, both by the apparatus he provides, and by his directions and tables, to make the task as light as possible. The manual is perfectly clear in language, easily comprehended and followed, and in the highest degree trustworthy in all important particulars.

G. B.

ACUPRESSURE. An Essay, to which was awarded the Merit H. Cash Prize, by the Medical Society of the State of New York. By JOSEPH C. HUTCHINSON, M.D. Albany, 1869. 8vo., pp. 22.

We have here no mean contribution to the surgical literature of to-day. In a brochure of twenty-two pages, with fifteen lithographic illustrations, there are given all the practical points of the subject. Borrowing from SIMPSON, and from PIRRIE and KEITH, with a number of valuable original experiments and a brief experience, there is a sufficiency to bring the matter understandingly before the reader.

The subject of acupressure as a hæmostatic agent has not received from the profession the attention it deserves. It has not become popular for the reasons that:—1st. Surgeons are not familiar with the *modus operandi* of applying the pins and wire; 2d. Confidence in this procedure has not yet been established. Though there is much of good in this process, we can not believe its use will supersede that of the ligature; still, there are certain localities in which it is decidedly to be preferred. Teachers of surgery should be familiar with the various modes of making acupressure, and so instruct their students that the profession of to-morrow, at least, will be enabled to use and improve its advantages.

The author suggests, and has practised, a new arrangement of the pin and wire, which he calls the 8th or Brooklyn method; it seems as plausible as any of the others, and we doubt not will have its place.

A. J. S.

A HAND-BOOK OF OPERATIVE SURGERY. By JOHN H. PACKARD, M.D. Philadelphia: J. B. Lippincott & Co., 1870. 8vo., pp. 208. Price, cloth \$5.00, leather \$5.75.

[For sale by the St. Louis Book and News Co.]

This book consists of fifty-four steel plates from Dr. H. H. SMITH's "Theory and Practice of Surgery," fitted with one hundred and ninety-four pages of text, well sprinkled with woodcuts from the advertising catalogues of two local instrument makers. Comparatively few of the illustrations were original even with SMITH, for by far the larger part of them are taken from BERNARD & HUETTE, but he had the good sense to give proper credit for them,—an example of honesty which has not been followed in the present publication.

The necessity of fitting a new text to the old plates has led, in some places, to rather ludicrous attempts to explain away what has been quite elaborately delineated, to say nothing of the prominence which is thus given to old and condemned operations by awarding to them the places of honor, while new and improved methods are either passed over in silence or are briefly noticed in some obscure paragraph of the text.

By this novel and ingenious method of book-making the publishers have given us a volume as costly as ERICHSEN'S *Science and Art of Surgery*, while it contains less information upon

surgical operations than that work, and far less than an ordinary five franc French manual on the same subject. It is somewhat difficult to guess for what class of buyers the present work is intended; we know of no class of professional readers to whom it is worth the price charged for it.

A PRACTICAL GUIDE TO THE STUDY OF THE DISEASES OF THE EYE; THEIR MEDICAL AND SURGICAL TREATMENT. By HENRY W. WILLIAMS, M.D. Third edition. Boston: Fields, Osgood & Co., 1869. 12mo., pp. xx., 422.

This third edition of Dr. WILLIAMS' excellent manual is printed, without change, from the stereotype plates of the edition of 1867, which was noticed at length in this Journal for January, 1868. We have, therefore, only to state again our appreciation of the book as a judicious and trustworthy guide to the student and general practitioner, in this branch of medical science.

J. G.

MODERN THERAPEUTICS: A Compendium of Recent Formulæ and Specific Therapeutical Directions. By GEO. H. NAPHEYS, A.M., M.D., etc. Philadelphia: S. W. Butler, 1870. 16mo., pp. 390.

A "first-class medical publication"—one of "the cheapest and the best in the country," as the publisher's modest advertisement informs us.

The class of books to which Dr. NAPHEYS's Compendium of Recent Formulæ belongs is based either on incorrect principles or vicious practice. A physician who, with a clear diagnosis of his case and well matured principles of treatment in his head, does not find within himself the resources which these books can furnish, has no business to practice medicine. No greater promoter of routine prescribing can be imagined than a collection of formulæ of this kind, used as a work of reference. Nevertheless, there is no doubt but that a demand for such collections exists; and if it is right to supply such demand at all, they form a legitimate branch of industry. The labor the author has invested in the undertaking has been very great, and creditably performed,—worthy of a better cause. Greater attention to the Latin would have been proper; cf. Formulæ 2, 20, 34, 124, 154, 187,—we have not read farther. The author is in the habit of writing "two teaspoonsful."

Extracts from Current Medical Literature.

SURGERY.

4. *Dislocation of the Elbow; a New Method of Reduction.* By THOMAS WATERMAN, M.D., Boston.

[*Boston Med. and Surg. Journal*, Oct. 14, 1869.]

Finding no record in the surgical text-books of the method described below, I have thought the following case and comments worthy of publication :

On the 9th of May last, I was called to visit Mrs. L., æt. 30. She stated that, when near the bottom of a flight of stairs, she had tripped and fallen down the last three steps, striking with the whole weight of the body on her extended hand. As the accident had happened but half an hour previously, there was no swelling to mask the lesion. The left elbow was flexed at a right angle, and all motions were attended with great pain. After etherization, the ulna was found to be dislocated directly backwards at the elbow, as shown by the unusual prominence of the olecranon, depressions on either side of the triceps tendon, and resistance to complete extension of the forearm, which was twisted and pronated. The head of the radius rotated in its normal position, and no other lesion—neither dislocation nor fracture—could be detected.

Assuming that the patient's statement was correct, it seems strange, in view of the intimate connection of the carpal bones with the lower extremity of the radius, that COLLES's fracture of that bone did not occur; or, failing this, that the head of the radius was not forced out of place, either alone or in addition to the dislocation of the ulna.

Faithful trials of Sir ASTLEY COOPER's method of bending the arm over the knee, and Mr. SKEY's method of extending the forearm directly downwards in a line with the upper arm, failed to produce any effect.

I then succeeded in reducing the dislocation by bending the forearm backwards beyond a straight line, when, without any extension downwards, the ulna returned to its normal position with a slight shock. An internal angular splint was applied, and evaporating lotions recommended. In eight days the splint was removed, the patient allowed to carry the arm in a sling and to execute slight motions in the joint daily.

The *modus operandi* of this method is as follows, viz.:—When the ulna is dislocated backwards at the elbow without fracture of the coronoid process, the latter occupies the olecranon depression of the lower end of

humerus, and often requires considerable force to remove it from its abnormal position. By the method above described, the forearm is used as a lever, with the power (hand of the surgeon) at one end, the fulcrum (olecranon) at the other end, and the weight to be moved (coronoid process) between. As the forearm is extended backwards beyond a straight line, the olecranon impinges against the lower end of the humerus and becomes a fixed point or fulcrum; by continuing the forced extension, the coronoid process is lifted out of the olecranon depression of the humerus, and, when this is accomplished the tonic contraction of the brachialis anticus muscle restores the ulna to its natural place.

It will be seen that this method of reduction is exactly the reverse of the process by which the bone becomes dislocated, although it returns by the same path by which it escaped; these two facts, it seems to me, should be borne in mind in the reduction of all dislocations, and additional proof of this statement may be derived from a study of Prof. H. J. BIGELOW's system of reducing dislocations of the hip by manipulation, and Dr. CROSBY's method of reducing dislocations of the thumb.

The method is capable of the most decisive demonstration with macerated specimens of the ulna and humerus, and might be employed in dislocations of both radius and ulna backwards. It would be especially efficient in the reduction of old dislocations after the adhesions have been thoroughly broken up.

5. *A Case of Fracture of the Odontoid Process of the Axis.*
By W. BAYARD, M.D. Edin., etc.

[*Canada Medical Journal*, Dec., 1869.]

I believe the following case to be unique, inasmuch as I am not aware of any record of recovery after fracture and displacement of the odontoid process.

In September, 1864, I was called with Dr. BORSFORD, to visit Charlotte Magee, of this city, a little girl of six years of age, well formed and robust, who had been laboring for three weeks under what was supposed to be "neuralgic pains" of the head and neck.

Her mother reported that in August, the child fell from a pile of boards, about five feet high, striking on her head and neck; that she cried severely at the time, and could not move her head without pain, but no other indication of injury was observed; that the inability to move the head continued, and the pain in the neck increased to such an extent that on the sixth day after the accident medical aid was sought.

I found her able to walk well, though she moved carefully, and supported her head with her hand placed under her chin. The head was inclined forward and to the right side, and any attempt to rotate or move it caused great pain; there was little swelling or pain upon pressure on the occipito cervical region, and no irregularity could be discovered in the vertebræ of the neck; the pulse was natural, and the general system was undisturbed. Beyond the pain and inability to rotate the head, there was

nothing to indicate the severe character of the injury, though it was apparent that the child had been badly hurt.

Warm fomentations and chloroform liniment were applied to the neck, and bromide of potash and anodynes given to relieve pain, with directions to keep the child perfectly quiet and as much as possible in the recumbent posture.

I did not see her after that till May (nine months after the accident), when her mother brought her to me. She walked well, though she constantly supported her chin with her hand placed under it. The head rested upon the right shoulder and could not be raised from it without causing severe pain. The neck was much altered in shape, and there was an irregularity in the region of the axis and atlas that gave the idea of a partial luxation of those vertebræ. Her general health was good, and the muscular power was perfect.

Her mother stated that about two months after my visit, the child was sitting at a table playing, when she suddenly called out, "Oh! mamma, hold my hands;" that when she got to her, both arms and legs were powerfully thrown back and moving convulsively; that she had not the power to support her head which fell from side to side. Her mind was not impaired, she conversed freely, and did not complain of pain. She was immediately placed in bed, when the spasmodic action of the limbs subsided, she fell asleep and slept quietly through the night. The next morning she was perfectly powerless from the neck down; she swallowed with difficulty, but articulated well, and the sphincter muscles retained their power. She continued in this state for three months, after which time the power of locomotion very gradually returned.

The history of the case and the appearance of the child, rendered it evident that some serious lesion had taken place involving the cervical vertebræ and spinal cord, and fearing that any sudden movement might produce such pressure upon the cord as to cause instant death, I had an apparatus made by which I could fix the head and *gradually* raise it from its position on the shoulder. The apparatus was made somewhat upon the principle of "Weiss's support for wry-neck," with a bar passing over the head, to which a strap was attached to support the chin, and the head could be moved and placed in any position by means of recompense screws.

She wore the apparatus for nearly a year, when she was able to leave it off with the head nearly erect, the neck tolerably straight, and possessing considerable power of rotation. There is a depression behind the right sterno-mastoid process, and a corresponding elevation upon the opposite side.

She continued in this state, with more or less pain, until March, 1867, when she was brought to me complaining of sore throat; upon examination I found tumefaction and redness upon the posterior part of the fauces over the body of the axis. Suspecting that an abscess was about to form, she was directed to gargle frequently with warm water, and return in a week, at which time she appeared, her mother producing a bone, evidently the odontoid process, saying that the child had coughed

it up in her presence the day before. I found an opening corresponding in size to the bone, near the body of the axis. In a short time the opening closed, the pain ceased, and the child, to use her mother's words, "got well."

The power of locomotion is perfect; she can walk or run at pleasure, can rotate the head pretty well, and is at present going through a severe ordeal, in the shape of an attack of whooping-cough. I may mention that she has, on several occasions, during a paroxysm, lost all muscular power and fallen in consequence of pressure upon the spinal cord, but the effect has been momentary.

That the bone in my possession is the odontoid process, I think there cannot be a doubt, and that ulcerative action sufficient to disengage it from its position should take place with so little constitutional disturbance, is remarkable. It should teach us to admire the wonderful conservative power of Nature.

6. *A New Method of Using Needles in the Operation for Harelip.* By LAWSON TAIT, Esq.

[*Lancet*, December, 1869, p. 648.]

I venture to bring before the notice of practical surgeons an improvement in this operation, which I believe to be one of importance. It is an operation which is performed principally for æsthetic reasons, and it is frequently marred in this respect by the ungainly scars which are left by the needles when used in the ordinary way; in fact, I have not yet seen a case in which this defect has not been marked. What I propose is, that instead of two or more needles being introduced transversely through the flaps, they should be used in this manner: Having made what incisions he deems requisite for the operation (and I may here say that I have abandoned all the fancy manipulations for the old-fashioned straight incisions, removing plenty of tissue), the surgeon is to introduce two ordinary sempstresse's needles, armed with a few inches of silver wire doubled, through the flaps, in the form of a St. Andrew's cross; the point of each needle is to be introduced through the mucous membrane of the lip, about half an inch from the edge of the flap, and brought out at the middle of the incision, then introduced into the other flap at the point opposite, and brought out at the root of the ala of the nose. The needles cross in the middle of the wound. The flaps are to be carefully adjusted, then the heads of the needles to be pushed fairly into the lip, and pulled together by twisting the wires; the points of the needles are then to be cut off close to the skin, and the stumps retracted into the flaps. In this way nothing is left to "catch," and when the needles are removed, by untwisting the wires and pulling by them, there are no scars left.

In the last case in which I used this method the parents of the child, aged seven years, say that it is scarcely possible for a stranger to tell that the child had been operated upon, and in this case there was a complete and very wide intermaxillary cleft, which I had previously closed.

7. *Ulceration of the Umbilicus and Strangulation of the Intestine in an Adult Female.* By T. L. OGIER, M. D., Charleston, S. C.

[*Amer. Jour. Med. Sciences*, Jan., 1870, p. 113.]

On the 20th of December, 1868, my friend Dr. WM. FITCH called upon me in the night, to see a case with him, requiring an immediate operation. On our way to the patient's residence, Dr. F. gave me the following account of the accident: "About two weeks ago Mrs. S. was attacked with a severe bronchial affection, which ended in pneumonia. She had an umbilical hernia of long standing, which had previously given her no trouble. She now complained of pain in that region, and the skin over the tumor was slightly ulcerated. She was directed to dress this with simple cerate, and to apply a soft compress and bandage so as to support the swelling during the efforts of coughing; but the patient was rather refractory, and neglected these precautions, not appreciating danger from this source, and anxious only about the trouble in her lungs. The cough was to-day almost incessant, and a few hours ago, in one of those violent paroxysms of coughing, the gut was suddenly forced through the umbilicus, and, by the persistence of the coughing, was protruded through the opening until thirteen inches of the intestine hung out in a loop from the umbilicus to the pubis."

On our arrival, we found the loop of intestine, above described, devoid of covering; it had ceased to be forced any further through the opening, was distended with flatus, and strangulated by pressure against the edges of the ring through which it had been forced. Vomiting, which usually attends strangulated hernia, was now very troublesome, and the matter thrown up was of a greenish-black color, but not fecal. The loop of protruded intestine was a portion of the ileum, and was of a very dark-red color, from obstruction of its circulation. To return the swollen gut through the same opening by which it had made its exit was impossible. I therefore passed a hernia-knife with some little difficulty between the intestine and the ring at the upper and middle portion, and slit up the abdominal parietes about an inch and a half at that point; the gut was then pressed gradually into the abdominal cavity until every portion returned. Much difficulty was experienced in doing this, owing to the incessant coughing. After this was effected, the remains of the umbilical tumor, consisting of the skin, cellular tissue, and peritoneal lining, were pinched up so as to bring the peritoneal surfaces in contact, which were permanently kept so by the application of the quilled suture, made with pen-handles cut about five inches long. A compress of lint, dipped in a weak solution of carbolic acid, was applied over the wound, and a doubled rag, dipped in the same solution, applied over the whole, and confined in place by the ordinary abdominal bandage. Half a grain of morphia was administered, and the patient left to rest, with directions to repeat the anodyne in two hours if not asleep. The next morning the patient was comfortable, and the dressings were not disturbed, except to moisten the

outer compress with the same solution of carbolic acid. The case was now turned over to my son, Dr. WM. G. OGIER, and Dr. AUGUSTUS FITCH, to whose unremitting attentions, day and night, the patient owes her recovery. The flap of skin outside of the pieces of wood used for the quill suture sloughed, but the peritoneal surfaces, which had been brought together, united firmly. In three weeks the wound entirely healed, and the umbilical projection disappeared.

A similar case has never come under my observation, nor have I seen one recorded. Umbilical herniæ are generally regarded of little consequence; they are so easily kept in place by a simple compress, that neither patients nor their medical attendants regard them as serious. But from the history of the above case it is evident that this simple malformation may endanger the life of the patient quite as much as a strangulated inguinal or femoral hernia.

8. *Operation for Fistula in Ano, by which all After-Treatment is rendered unnecessary.* By J. J. CHISOLM, M.D., Prof. of Operative Surgery in the Univ. of Maryland.

[*Baltimore Medical Journal*, Feb., 1870.]

In the method for laying open a fistulous passage, whether a probe-pointed bistoury be used, cutting from the bowel outward, or whether the wall of the lower portion of the bowel be everted upon a flexible groove director, so that the entire thickness of sphincter muscle may be divided, I propose no change. Either method is efficient for the division of all the tissues between the fistulous track and the rectal cavity. The change proposed protects the patient from hemorrhage, but is designed more especially to do away with the annoying after-dressings with which patients are so pertinaciously punished day by day, until the gaping wound made by the knife becomes filled with granulations, with a surface ready for cicatrization.

The daily insertion of a piece of lint between the lips of the wound, as still recommended in all standard works on surgery, is a very painful procedure, even in the hands of a delicate manipulator; but a plug of greasy lint, when thrust into an irritable anal orifice, according to the usual way of dressing such wounds, is the cause of much suffering. The sole object of this after-dressing is to prevent the immediate growing together of the newly-cut surfaces, and thereby ensure healing from the bottom. However carefully a small piece of lint is laid on the wound, it will always be found at the next examination, and very often in a few minutes after the dressing has been inserted, corrugated in the centre of the anal opening, leaving the surfaces of the wound in contact. It therefore does not fulfill the object designed. If a sufficiently large plug of lint is introduced to ensure the separation of the lips of the wound, it causes painful and annoying distention of the rectal outlet.

I was induced, many years since, to substitute for this annoying, painful, and inefficient dressing, a single application of the liquid persulphate of

iron. This was used for the purpose of ensuring a surface sloughing of the sides of the wound, just sufficient to preclude the possibility of the immediate growing together of the recently-cut surfaces, although close apposition be permitted. Long experience has sustained the utility of this application, and this plan of after-dressing, immediately after incising fistula in ano, is now extensively adopted by surgeons in the United States.

Immediately after making the incision, a large camel-hair brush, or a sponge mop, saturated with the liquid persulphate or perchloride of iron, is drawn through the wound, care being taken to bring the iron styptic cautery in contact with the entire surface. The effect is three-fold:

1. To cauterize the surfaces and prevent agglutination of the newly-cut walls.
2. To arrest hemorrhage.
3. To clot the blood in the wound, and oppose this physical barrier to the approximation of the surfaces.

Should the hemorrhage be very free, it may be necessary to secure in the wound, for a few hours, a compress of lint, saturated with the iron styptic.

Beyond this immediate and single application of the iron, no further local treatment will be required. Daily ablutions, either with cold or warm water, as most agreeable to the patient, will be needed for cleanliness. For ordinary cases of fistula in ano, it will not be necessary for the patient to keep the bed, nor even the house, for any length of time; and often business can be resumed the day after the operation.

VENEREAL DISEASES

- I. *On Urethral Chancre Observed by Desormeaux's Endoscope.* By E. L. KEYES, M. D., one of the Surgeons to Bureau of Out-Door-Relief, Bellevue Hospital, N. Y.

[*Amer. Jour. of Syphilography*, Jan., 1870, p. 37.]

J. B., unmarried, æt. 26, presented himself, December 4, 1868, to be treated for his first attack of gonorrhœa, which attack, he stated, had commenced exactly four weeks before, and for which he had as yet undergone no treatment. The patient had been last with a woman five weeks before (latter part of October, exact date forgotten), having previously indulged in no sexual intercourse for three weeks.

I found a rich creamy discharge flowing from the meatus, history of smarting on urination, etc., etc., and gave the case but little attention, prescribing the ordinary balsamic treatment. The inguinal glands were not examined. December 21st, patient reported cured and was discharged, being advised to continue his medicine. December 28th, patient

again presented himself, to say that his discharge had returned, but that it was no longer thick, as formerly, being now transparent, watery, and slightly sticky. Ordered, in addition to other treatment, an injection of sulphate of zinc, gr. ii., to the ounce of water.

January 11, 1869. patient returned, talking hoarse, and complaining of pains in his bones, to show an eruption which covered his whole trunk and extremities, and which presented, unmistakably, all the characters of a well marked syphilitic roseola. The patient had discovered this eruption by accident a few days before. A most careful and attentive general inspection failed to detect a chancre upon any part of the body, or any hardness along the urethra. Patient denied ever having had a sore; genital organs had been affected by no disease before the present one. He had had no bloody discharge nor any localized point of pain on urinating, nor could the most careful palpation discover any induration at any point along the urethra. Here was a case of syphilis which certainly seemed to have a gonorrhœa for its initial lesion. Separation of the lips of the meatus disclosed no ulceration. The gleet discharge still continued; inguinal glands enlarged, indolent, indurated.

On introducing the tube of DESORMEAUX's endoscope about six inches down the urethra, the membrane was found to have lost its polish in some measure, and to be of a dusky, dark red. On drawing the tube forward there was distinctly visible along the upper wall of the urethra, about 1 1-4 inches from the meatus, just to the right of the median line, an oval, very slightly depressed, pinkish ulceration, distinctly lighter in color than the rest of the membrane, of about three lines in its greatest diameter, which diameter was parallel with the long axis of the urethra. Dr. CROSBY, of New Hampshire, and several medical students who were present, also observed and verified these appearances. Patient was put upon mercury and sulphate of iron, and all treatment against the gleet discontinued.

March 19, he again appeared, stating that he had continued the pills until all his former eruption had left him. His skin had continued clear for a few days, and then another eruption had appeared, for the treatment of which he now presented himself. This eruption was almost exclusively confined to the forearm and leg, and was a syphilide, composed of lenticular papules grouped into circles. Some of the papules were capped by a small pustule. The gleet discharge had long since ceased, and through the tube of the endoscope I saw a pinkish white cicatrix in the place of the old ulcer in the urethra.

Without the endoscope, diagnosis in this case would have been impossible. Urethral chancres situated so deeply that they can not be seen by separating the meatus are very rare. BASSEREAU, CLERC, CANIER, ROLLET, FOURNIER and others report urethral chancres, but in almost every instance the meatus was involved, or the sore could be seen by separating the lips of the meatus. The only considerable number of chancres more deeply situated are reported by FOURNIER, who, out of 474 chancres of all parts of the body, found 17 low down in the urethra.

No injection was ever used by this patient except the mild solution of sulphate of zinc above mentioned, nor was any violence ever done to his urethra to cause the little ulceration observed through the endoscope. ROLLET states that the induration is always perceptible from the outside in cases of urethral chancre. It was not so in this case, depending, I suppose, upon the fact that the chancre was confined to the upper wall of the urethra, and that the induration could not be distinguished from the hardness of the tough, fibrous sheath of the corpora cavernosa. Moreover, the induration must have been of that parchment-like character often felt under the superficial erosions of external parts, which constitute, sometimes, the initial manifestation of general constitutional infection. I believe that in this case the patient contracted two diseases at the same time—gonorrhœa and syphilis; for, at the end of October, the suspicious contact took place. In a few days a discharge declared itself, which soon became profuse, and which was the cause of his presenting himself to me four weeks afterwards. This disappeared in about two weeks, and the patient thought himself cured; but a more careful subsequent inspection showed him that he still had a slight discharge (differing, however, from the first), and which, probably, had existed with the other, and been concealed by it. How long, then, the period of incubation of this chancre was, it would be impossible to say. Or, possibly, the urethritis may have been caused and kept up solely by the irritation of the chancre. In any case, there was an infecting chancre present, deep in the urethra, and not manifesting itself by any external signs. The endoscope was necessary to diagnosis. Without it the error of considering a urethral discharge as the starting-point of syphilis in this case would have been almost unavoidable.

2. *Treatment of Constitutional Syphilis.* By Prof. LEBERT, of Breslau.

[*Practitioner*, Jan., 1870; from *Med. Times and Gaz.*, Nov. 20, 1869.]

Dr. LEBERT states he now applies courses of inunction for constitutional syphilis much more frequently than formerly, and uses with relatively less frequency the courses with pills containing sublimate or protoxide of mercury, which act very slowly, disturb digestion, and, after long continuance, produce in the mouth disagreeable after-effects, no longer of a syphilitic nature, which molest the patient, and in spite of all assurances make him uneasy. Salivation produced by any mode is injurious, and is therefore to be avoided. The syphilitic patient is anæmic, and his nutrition is impaired. Low diet and hunger, therefore, do not act beneficially, but have an injurious effect. Long seclusion in a small room at a high temperature adds to the disease the sickening effects of confinement. M. LEBERT states that the average quantity of blue ointment to be used daily is half a drachm, and he often obtains a very good effect in inveterate cases from administering the iodide of potassium in addition.

3. *On the Treatment of Constitutional Syphilis by the use of Creasote and Carbolic Acid.* By MR. MORGAN, F.R.C.S.I., &c., Surgeon to Mercer's Hospital, and the Westmoreland Lock Hospital, Dublin.

[*N. O. Journal of Medicine*, April 1870; from (*Dublin*) *Medical Press and Circular*.]

Having treated, during the last twelve months, a large number of cases of constitutional syphilis by the administration of creasote in full doses, I would draw attention to its value when given in the early stages of constitutional infection, and specially where mercurial treatment is inadmissible, or when patients are of the strumous diathesis.

It must be admitted that no one remedy or line of treatment can boast of unvarying success in this disease, not even mercury itself, however carefully exhibited. I can not claim for the creasote treatment a uniform success, but I have found it most decidedly useful and curative in many instances of constitutional manifestations.

Various, indeed, have been the suggestions as to the nature of the syphilitic poison; if analogous to hydrophobia, or a ferment in the system, or an "algoid vegetation," as lately suggested, it is, unhappily, too true that the poison, once introduced, is so capable of causing an alteration of the whole organism that, to use the words of LANCEREAUX, "the individual has acquired the syphilitic constitution, and is no longer a normal being, but an individual deviating from the type, having undergone a kind of degeneration."

The cases in which I adopted this method were chiefly those suffering from the first influence of this "syphilitic constitution," such as mucous patches, roseola, papular eruption, and cachexia. The usual plan I followed was, keeping the patient in bed as far as possible, allowing a nourishing diet, and the use, at least every second night, of a warm bath, to which two ounces of carbolic acid were added; the patient should remain in this bath half an hour, or even longer, so as thoroughly to influence the skin. The creasote mixture I prescribed was—

℞ Creasoti, ʒj.
Mucilaginis, ʒj.

Tere et adde—

Tinc. opii, ʒj.
Aquæ menthæ pip., ʒvij.

℥. Sumat cochl. i. magnum quater in die.

Usually within ten days an amelioration takes place, and gradually the signs fade. Should iritis or any acute sign appear requiring mercurial treatment, this remedy can be given as well as the creasote mixture.

4. *Syphilitic Headache.* By EDWARD H. M'CLEAN, Lyndhurst.

[*Lancet*, April, 1870.]

One of the commonest and at the same time least-known effects of syphilis is simple headache. By this term I mean headache unaccom-

panied by nodes on the head, or by any form of secondary or tertiary eruptions or ulcerations. So great is the ignorance as a rule, of this painful and yet easily to be relieved malady, that I am sure not a few will here for the first time learn that headache, as I have just described it, is one of the sequelæ of syphilis. This ignorance is not surprising; for there is not a book ordinarily used in schools that even hints at such a symptom by itself being due to syphilis. I have seen cases over and over again of persons who had suffered from headache, some for weeks, some for months, and some for years, who had been treated with effervescing draughts and every stomachic contained in the Pharmacopœia without avail, and who, when inquiry was made into their previous history, were found either to have inherited or to have begotten by their own indiscretion the taint of syphilis.

In the treatment of headache which has been found to continue for any length of time, inquiry should be made into the history of the patient, and search made for evidence of a syphilitic taint, which will in almost all cases be found. For this headache we have in the iodide of potassium a remedy which is indeed a veritable specific; for it never fails to effect a cure, and its action for good is almost magical.

In illustration of what I have written, I offer you two cases out of several that my note-book contains.

The first is that of Miss B., a young lady who had suffered when I first saw her from headache for two years. She had been under the care of several medical gentlemen, including one of the most eminent physicians of London, all of whom told her she was dyspeptic, and prescribed accordingly. She had lost flesh considerably, had no appetite, continually vomited, passed sleepless nights, and on the slightest exertion became so faint and giddy, that if no chair happened to be near, she had to be content with the floor. I suspected syphilis. I could not question her on the point, and I could find no evidence of the disease until I looked at her teeth, which were like unto those described by Mr. HUTCHINSON as due to inherited syphilis. I ordered her five grains of iodide of potassium three times a day. In two days all pain in the head and giddiness had disappeared, and at the end of ten days she was quite well, and rapidly regaining flesh and strength.

The second case was that of a carpenter, who, when I was house-surgeon, was under my care at St. Bartholomew's Hospital with a Hunterian chancre, which had healed in less than a month under the usual treatment by mercury. Seven months after he had left the hospital, he came to see me in the surgery one morning, and told me he had been living at Bermondsey, and for the last ten weeks had been suffering from continual headache, giddiness, and languor. The doctor whom he had been under told him that his liver and stomach were out of order, and, I suppose, treated him accordingly. There was not a trace of secondary eruption on his body or in his throat. I gave him the iodide of potassium in five-grain doses thrice daily. At the end of three days all headache had disappeared, and at the end of a fortnight he was completely restored to his usual health.

GENERAL PATHOLOGY & PATHOLOGICAL ANATOMY.

1. *Recent Researches on Tuberculosis.* By J. BURDON SANDERSON, M.D., F.R.S., etc.*

[*Edinburgh Medical Journal*, Nov., 1869, p. 385.]

I propose in the following pages to give an account of some of the more important results of the experiments which have been made during the last few years as to the artificial production of tubercle, to illustrate their bearing on questions of pathology, and to endeavor to bring them into relation with the teachings of clinical experience. I have first to state as clearly as I can what are the leading facts as to artificial tuberculosis, leaving out what is unimportant, taking in all that has a bearing on my subject, whether it results from my own observations or those of others.

The literature of artificial tuberculosis is very extensive; for without reckoning limited inquiries, six complete series of researches have appeared in Germany, two in England, and two in France.

Artificial tuberculosis is most easily produced in the guinea-pig, next in the rabbit; with most difficulty in the dog. The results obtained with horses and cattle are as yet doubtful.† For three reasons the guinea-pig is preferable; (1) because it is absolutely free from liability to natural tubercle; (2) because it is little liable to acute inflammation; and (3) because it can be inoculated with absolute certainty. Artificial tuberculosis may be produced either by the inoculation of infective material of traumatically. My experiments show, that of all inoculated materials none is more certain or more active than material taken (as vaccinators say) hot from the diseased glands of a living animal already infected. The dose required is almost infinitesimal. If a diseased gland is squeezed into a little distilled water in a capsule, and the resulting slightly turbid liquid injected into the pleura or peritoneum, you are certain of results. I have inoculated with success in a great number of situations; most frequently in the subcutaneous cellular tissue, but also underneath the conjunctiva, in the brain, and in the serous membranes. For the purpose of studying the process, the serous membranes are so infinitely preferable, that I will confine myself to the results so obtained.

In April, 1868, Dr. WILSON Fox and I published, for the first time, experiments showing that tuberculosis may be produced in animals traumatically. I happened to have precedence as regards the date of publication, but the experiments were made independently and at about

* My own researches as to artificial tuberculosis are contained in the Appendix to the Report of the Medical Officer of the Privy Council for the present year, and in that published in 1868. The reader will also find in those papers a detailed account of other researches on the same subject.

† The recent researches of M. CHAUVÉAU, not yet published in detail, show that artificial tuberculosis can be produced with the greatest facility and certainty in bovine animals.

the same time. I produced tuberculosis in the guinea-pig by the insertion of setons, Dr. Fox by the insertion of various non-tuberculosis products, and also by setons. This result has since been abundantly confirmed by ourselves and by others, especially by Professor COHNHEIM, who produced the required injury not by setons, but by the introduction of a variety of foreign bodies, in themselves harmless, into the *peritoneum*. In each case a cold abscess was produced around the foreign body as the primary effect, and tuberculosis supervened.

What is the nature of the result produced, and what reasons have we for identifying it with human tuberculosis? I shall consider the question at the same time with relation to the traumatic and infective form. The result of either process is to produce a definite disease—a disease which affects almost all the internal organs except the brain, and consists in the formation in them of nodules of new growth. This new growth has that peculiar structure which is common to all those diseased products which VIRCHOW calls lymphomas, including scrofula, leucæmia, tubercle, several diseases of the lower animals, particularly the tuberculous disease of horned cattle, and farcy. VIRCHOW calls all these lymphomas, because they all present a structure which is to be found in certain organs belonging to the lymphatic system. VIRCHOW distinguishes lymphomas into two great classes, hyperplastic and heteroplasic. The hyperplastic lymphoma *par excellence* is scrofula, for this consists in overgrowth (resulting in degeneration) of the lymphatic glands. The heteroplasic lymphoma *par excellence* is tubercle, for it consists in the growth of nodules of material which have the same structure in parts of the body where no such structure exists. . . .

The author then refers to the occurrence in various parts of the body of organs which possess a structure exactly resembling that of the lymphatic follicles, and which he calls *adenoid bodies*, “consisting of collections of the [adenoid] tissue in question, surrounding tufts of capillary vessels, and covered with epithelium;” such bodies are found in great numbers in the pleura, peritoneum, choroid, and, according to the author, in the medulla of bone.

We have seen that all these structures agree in being formed of adenoid tissue; that tubercle (in the true sense), the new growth in leucæmia, the new growths in the tuberculous disease of cattle, have this in common—that they also consist of adenoid tissue; and that VIRCHOW distinguishes tubercle from the rest mainly in that it is heteroplasic. I have now to say, that the tubercle produced artificially is in a certain sense hyperplastic—that is, it is an overgrowth, not a new growth. Thus, the parts most apt to be affected by tubercle are those in which the structure in question exists naturally. The tubercle nodules which are formed in the peritoneum and pleura are overgrowths of nodules which existed before; the masses of new growth in the lung are overgrowths of masses infinitely smaller which existed before; the nodules in the choroid are

agglomerations of pre-existing elements, and so on. In order to see this process, you should introduce into the pleura an infinitesimal portion of water impregnated with diseased gland, as already described. In a fortnight or three weeks you have your results. Suppose you take two guinea-pigs, and inject into the pleura of one, leaving the other untouched: In the former the pleura is studded with miliary tubercles, small, but visible to the naked eye; in the latter may be studied the adenoid bodies I have described. They have the same structure as the tubercles, which are simply adenoid bodies enlarged.

This process of overgrowth of pre-existing adenoid tissue is not, however, all that we observe in artificial tuberculosis. I have already stated that nodules are found not only in the serous membranes, but in the solid organs. In the latter, the constitution of the nodules is somewhat more complicated. I will take two organs to illustrate this—the liver and the lungs. In the liver there are two very distinct forms, the leucæmic and the miliary serous. In the first the new growth assumes precisely the character of leucæmic enlargement. The organ is enormously enlarged in consequence of the growth of adenoid tissue around the bile-ducts. At the same time the epithelium of the bile-ducts grows with great activity, so that you have a combination of two things—overgrowth of adenoid tissue round the ducts, of epithelium within the ducts. In the serous form, miliary nodules of adenoid tissue grow underneath the serous membrane.*

In the lung there are also two forms. In tuberculized animals the lung becomes disseminated with minute nodules of lobular catarrhal pneumonia. Each nodule is extremely translucent. On making sections it is found that it consists of two materials entirely different from each other anatomically. On the one hand, the alveoli are choked with the ordinary roundish cells which are always found there † The alveolar walls are thickened by the growth in them of adenoid tissue. As the disease progresses these masses of lobular pneumonia coalesce. Each mass caseates at the centre, *i. e.*, becomes opaque and soft. The disintegration goes on till a vomica is formed. It is not necessary to go further. Let me now consider what is the meaning of the process I have been describing.

What is the relation between the tuberculosis produced by inoculation and that produced traumatically? In both we have to do with infection—that is, the disease progresses, not by continuous growth, but by the distribution or dispersion of infective material from one point. This point I call the focus of infection. I assume that the communication of the disease from a part primarily affected to the rest of the body takes place in the manner indicated, *i. e.*, that it is due to the conveyance of an infective material, and therefore that we may have to do with primary and secondary lesions. Now, when you produce an injury of the external

* These nodules have been mistaken by VILLEMIN and others for sections of miliary tubercles.

† These cell-like bodies which occupy the alveolar cavities are often called epithelial. Their relation to epithelial lining of the alveolar walls is not known.

surface of such a kind as to bring about those internal changes which constitute tuberculosis, you do so by first producing local primary lesions which are of the same nature as those which result from inoculation. You produce sometimes an open sore surrounded by a base of induration; sometimes an abscess with indurated walls; sometimes no perceptible abscess, but a nodule of induration. It is therefore the induration which constitutes the primary lesion—the induration, which in both cases is the source from which the whole body is infected. . . .

In the distribution of the infective material through the body' the author thinks, both veins and lymphatics are concerned. As to the nature of the infecting agent—

I hold with WALDENBURG the material to be solid matter in a state of extremely fine division, but do not agree with him in separating tuberculosis from the infective processes which constitute the specific infective diseases, *e. g.*, smallpox, scarlet fever, glanders. By proving that the infective material is necessarily solid, not in solution, we establish and strengthen the analogy with other infective diseases. It appears to me certain, from the experiments of CHAUVEAU, that the contagium of smallpox is an insoluble substance, and exists in the state of minute particles; and that the contagia of vaccine, of glanders, and of ovine smallpox are of a similar nature. All our researches therefore tend to bring tuberculosis into the category of infective diseases; but on the other hand, they lead us to believe that the infective matter is infinitely more common, and that the conditions for its production are probably much more of frequent occurrence than those which generate the other morbid poisons.

I have now said as much as I have time to say about the results of artificial tuberculosis. I have endeavored to show that the disease produced is an infective disease, that its spread through the body is due to the presence in the circulation of an infective material, which may, I think, be nearly allied to the infective materials of other diseases of the same class, and that its anatomical resemblance to the so-called tuberculosis diseases in man and other animals is so great that it is not possible to point out a difference. . . .

After a very lucid exposition of the historical development of the doctrines on tubercle, the author speaks of the pathology of human tuberculosis, especially pulmonary phthisis:

Anatomically the cardinal fact is this: All cases of phthisis pulmonalis have this in common, that they commence with lobular induration, and end in disintegration and cavern-formation. In no generally understood sense can a case of acute miliary tuberculosis be said to be a case of phthisis. This broad definition of phthisis brings us back once more to LAENNEC. It was he, indeed, who first recognized the fixed relation between induration and disintegration as antecedent and consequent; but he unfortunately extended the notion from the tissue to his "tuber-

culous material." The conclusion to which we have now arrived by anatomical investigation is this: There is no difference structurally between the induration of phthisis and the induration of chronic pneumonia. There are no anatomical elements in the hard parts of a phthisical lung which are not to be found in the hard parts of chronically irritated tissue in any other organ. Finally, there are no elements in the induration of phthisis which are not to be found in chronic bronchitis. It is even possible that there are no anatomical elements in the induration of phthisis which are not to be found in the healthy lung. We can not say this positively as regards man, but it is certainly so as regards the guinea-pig.

If we examine the unsoftened part of an ordinary phthisical lung, what do we find? Precisely the same structural changes which I have described in the guinea-pig—*i. e.*, changes of two distinct kinds; those of one kind having their seat in the alveolar septa, those of the other in the alveolar cavities. The change in the alveolar septa consists in the development of the tissue which I call adenoid—lymphoid corpuscles embedded in stroma. The change in the cavities consists in accumulation of cellular elements. A diagram of the transparent nodules in the guinea-pig's lung represents as truly the early stage of tuberculous consolidation in man. In the structure itself there is nothing either specific or malignant.

In studying the development of consumption in man, it becomes more and more apparent that three distinct agencies are at work. Of these agencies one is so ill defined that we can only designate it a tendency. To some minds, I am aware, to talk of a constitutional tendency seems meaningless. I am not going to assert the possibility of disease existing absolutely independently of material change, but I do assert strenuously that disease may exist without its being possible to detect any anatomical or chemical basis for it. As regards pulmonary consumption, the fact of its so frequently attacking in succession several members of a large family shortly after adult life, affords to me a proof beyond the possibility of dispute, that something phthisical exists in each such member. In this sense I believe in the existence of latent phthisis, but in no other. No proof has yet been given that, in individuals in whom this tendency exists, the solids or fluids are differently constituted from others. The latent condition can only be described as a tendency or liability, the nature of which is open to speculation.

The second agency is irritation. The organs which are subject to injury are, above all, the mucous cavities which communicate with the external air. A common bronchial catarrh, not differing in any respect except its result from other bronchial catarrhs which terminate favorably, gradually assumes the characters of consumption. In the cases in which tuberculous processes originate from catarrhal inflammations of the genito-urinary organs, the same thing happens. Gonorrhœa leads to prostatitis, prostatitis to scrofulous catarrh of the bladder, which creeps upwards along one or both ureters, and produces induration and caseation of one kidney—that condition which is called renal phthisis. In both of these instances an indurative process, which ultimately becomes disintegrative—*i. e.*, a tuberculosis—begins from a simple catarrh of irritative origin.

The third agency is that which I have designated throughout as *infection*. The word designates the fact, that whenever a chronic induration due to overcrowded corpusculum exists in any organ, it is apt to give rise to similar processes elsewhere.

Although this is the point which artificial tuberculosis serves to illustrate, the notion does not owe its origin to the results of experiment. It was distinctly formalized at least twelve years ago by BUHL almost in the terms in which we are now disposed to accept it. BUHL, however, limited its application to cases in which there are miliary tubercles. He showed, in the first place, that in persons who die of that variety of fever which is characterized by the general dissemination throughout the body of miliary granulations (acute miliary tuberculosis), masses of induration, which have remained in the body long enough to become caseous, are in the great majority of cases to be found; and *secondly*, that in those cases in which miliary tubercles are sown over a much more limited region, as, *e. g.*, when they are confined to a single organ, they also spring from old lesions.

Both of these doctrines of BUHL's are, I think, well established, and will be accepted by most pathologists, provided they are not overstated.

They do not, however, include the ordinary case of phthisis, for the instances of phthisis in which typical miliary tubercles are to be found are comparatively very few in number. The position I wish to advance is that *infection* has to do with the development of ordinary consumption—in short, that BUHL's doctrine applies in a certain sense to the so-called infiltrated forms of induration as well as to the miliary.

The results of experiment, as I have said, help us to understand this. If inoculation had produced only miliary lesions, we might have been disposed to *limit* infection to such lesions. The facts are otherwise. By inoculation you get miliary granulations in the serous membranes and in the choroid, but interstitial or diffused lesions in the liver, lungs, and other massive organs—so that here interstitial induration is part of an unquestionably infective process.

By regarding the development of so-called infiltrated gray tubercle as infective, one gets rid of some difficulties. We are no longer compelled to accept the teaching of some of the French followers of VIRCHOW, who restrict the term tuberculosis to what is called "granulie," or to draw too marked a line of distinction between cases of phthisis in which miliary granulations are present and those in which none can be found—or, with NIEMEYER, to refuse to apply the term tuberculosis to any excepting certain rare forms of consumption.

As to the word tuberculosis, obviously it would be a great advantage pathologically to get rid of it, as having no anatomical or chemical basis. At the same time, it must be admitted that it has a practical value, as implying a particular kind of malignancy. This malignancy stands in close relation to the infection of which I have been speaking, and, in particular, to that crowding together of new growth, whether catarrhal or adenoid, which is the essential character of an infective focus.

In other words, if *tuberculous* as applied to any organic disease means anything, it means destructive induration—*i. e.*, that the organ is first hardened, and then becomes softened and indurated. This, for example, is the only respect in which tuberculous disease of the testicle, of the kidney, of the bone, and of the lungs all agree.

Here I must leave off abruptly. In conclusion, let me observe, that in my judgment the question of specificity is not one of merely theoretical interest. The doctrine has, I believe, exercised an unfavorable influence both on the treatment of phthisis, and on the management of phthisical patients. It has led men to forget that consumption is influenced by the ordinary causes of inflammation, not only in its origin, but in each step of its progress; and that one most important aim in treatment must be to counteract this influence—not, of course, by returning to the antiphlogistic remedies of the past, nor indeed by any therapeutical interference whatsoever, but by bestowing on the treatment of acute catarrhal affections, whether of the pulmonary, intestinal, or genito-urinary mucous membranes, a great deal more care than has hitherto been considered necessary; and, on the other hand, by affording to the poor when actually suffering from acute disease of the lungs the means of placing themselves under protection without delay from the injurious action of cold and occupation.

MATERIA MEDICA AND THERAPEUTICS.

1. *Therapeutic Note on Chloral.* By Sir J. Y. SIMPSON.

[*Medical News*, February, 1870.]

Sir J. Y. SIMPSON gives (*Med. Times and Gazette*, Jan. 1, 1870) a very interesting account of his experience with chloral. He thinks that this remedy will prove of immense value in the practice of medicine, surgery, and midwifery.

"Hitherto," he states, "I have principally employed it as an hypnotic and anodyne. In sufficient doses I have found it, as a general law, as sure a producer of sleep and soother of pain as opium or any of its preparations. It is usually swifter in the induction of its narcotism, more tranquil in its action, and more prolonged in its effects than opiates are when taken as hypnotics; but above all, it seems in a great measure, free from some of the minor drawbacks and disagreeable accompaniments produced by a full and large dose of opium. In this respect it appears to me to fulfil successfully the indications which I predicted in the extract above given, of being a narcotic as powerful, and indeed more powerful, than opium, 'yet without either its direct constipating effects, or its indirect tendency to excite subsequent nausea, vomiting, etc.' The sleep induced by a full dose of it steals on without any premonitory symptoms. It is usually deeper, and yet more quiet and calm, than that produced by

opium; and it does not leave subsequently the thirst, dry throat and tongue, disturbance of stomach and appetite, and languor of mind as well as body, which most persons unaccustomed to the use of opium commonly feel after a deep and narcotic dose of that drug.

"Ever and anon cases are well known to occur in practice in which patients declare their inability to take opium in any form without suffering severely from nausea, faintness, restlessness, and other evil effects. In several such cases I have now used chloral as an hypnotic with perfect success. A patient here at present from New York assures me that the preparations of opium and other vegetable anodynes have always acted upon her as poisons, and without producing their usual hypnotic effects. 'Such,' she writes me, 'being my experience of anodynes, I was unwilling, as you remember, to take chloral, and hoped nothing whatever from it. It was administered to me in two half-doses, [thirty grains each]; the first dose, taken in the daytime, with light in the room and my people walking about, did not put me to sleep, but it soothed and calmed me completely. The second dose, given at night, was followed by nearly four hours of natural and refreshing sleep. I felt neither giddiness nor heaviness on walking, and neither then nor later did I experience any sensation of nausea as after other anodynes.'

"Two or three weeks ago I had under my care an old patient, a lady of great sensitiveness and intellectual power, from one of the midland counties of England. When last in Edinburgh she was the subject of a slight operation, and twice took a dose of chloral at night to induce rest. She slept under it quietly and refreshingly, far beyond her usual breakfast hour. Opium, henbane, and other anodynes had, when used, generally induced in her disturbed sleep, occasional sleep-talking, and sometimes somnambulism. A few days before coming on this last occasion to Edinburgh, she had a conversation with her mother regarding the kind of monument which they should erect over the grave of her father, who died two or three months since. That same day she had traveled up from Wales, felt ill, and had given to her a dose of henbane towards bedtime, with the hope of producing rest. In the middle of the night her husband was awoken by the ringing of his door bell, a shower of small stones launched against his bedroom window, and the dog barking within. On rushing down and opening the door he found his wife, whom he believed to be in bed, standing outside. The henbane draught had produced a fit of sleep-walking. After her husband and she had fallen asleep she had risen, dressed herself in her day clothes over her night clothes, removing for that purpose her bonnet and muff out of their special receptacles, and, in the middle of a dark and wet night, had walked off to a distance of two miles. She awoke with her left hand holding her two gloves within her muff, and the right hand grasping the cold iron handle of the inner gate of the churchyard in which her father had recently been buried. After using the chloral she expressed to me great satisfaction at the idea that she had now a medicine which seemed to produce nothing but a tranquil sleep, quite different from the disturbing effects of the narcotics which she had previously taken; and two

days ago I saw an order from England at the apothecary's for several doses to be forwarded to her.

"Sometimes chloral produces its hypnotic effects when opium, from its long-continued use, had ceased to do so. To a patient who has had daily morphia injected subcutaneously for some years for neuralgia of the side under the hands of different practitioners, my assistant, Dr. Bell, gave at my request a drachm dose of chloral. Latterly a grain of morphia has been injected daily with the effect of relieving the pain, but without producing sleep. She swallowed the dose of chloral early in the afternoon, and was asked to lie down in bed. I saw her in a quarter of an hour afterwards deeply asleep; and the lifting of one eyelid to look at the dilated pupil did not awaken her. She awoke out of the slumber free from her neuralgia.

"I am not aware of any special contra-indications to the employment of chloral when used for somniferous purposes. Even in head and chest affections, where I should have been chary of having recourse to opium as an hypnotic, I have employed chloral with perfect success. The contra-indications to opium offered by a tendency to constipation, etc., do not exist against chloral.

"Like all other remedies in the *Pharmacopœia*, it will no doubt occasionally fail to produce its desired effect; but as seldom so, perhaps, as most of them. In a few instances the sleep induced by it has been dreamy and hysterical, particularly when the patient was not kept in a state of perfect quietude; but these are rare exceptions to the general rule.

"In the present remarks I have spoken specially of the somniferous or hypnotic powers of chloral. I have used it for other purposes, but it is not my intention to dwell upon them at present. It will not fulfil all the many and almost endless indications for which opium is used in medicine; but I have seen enough to convince me that it will prove a very valuable anodyne in some cases of neuralgia, hysteralgia, dysmenorrhœa, pleurodynia, etc., and in the pains attendant upon cancer and acute local inflammations. In some cases of irritable bladder and chronic cystitis I have found it give the patient much longer and more perfect rest than large doses of opium. In several instances it has seemed to me, when given in small and repeated doses, to soothe down both acute and chronic cough with remarkable effect; and I have known it to relieve asthma. Lately in a young lady whom I saw, in consultation with Dr. TAYLOR, suffering under a severe attack of congestive bronchitis with some hæmoptysis, and orthopnœa, a small dose (twenty grains) of chloral was given at night. 'She speedily fell asleep,' wrote Dr. TAYLOR to me the next day, 'and slept soundly until 4 A.M., when she sat forward in bed and coughed, but appeared to be only half awake. When I called in the morning at 10.30 she was still enjoying a most placid slumber. 'As I contrast,' Dr. TAYLOR adds, 'the distressed and audible breathing of last night with the tranquil sleep and improved state of the patient to-day, I cannot help concluding that chloral has a directly sedative effect on the whole respiratory surfaces.'

"Occasionally I have exhibited chloral in continuous small doses for one, two, or more weeks in succession, and apparently with most marked benefit, particularly in cases of chorea, threatened or incipient insanity, etc. A patient from Illinois, who, for several years, has always regularly suffered excruciating spasmodic pain in the left iliac region, attended with some discharge, for eight days before menstruation began (she has disease of the fundus uteri and left Fallopian tube), has, during the last two periods, kept at bay this old and formidable suffering by taking chloral night and morning during the threatenings of it. She strongly assures me that formerly she had used very large doses of opium and other anodynes without any such favorable effect. I have found the parturient uterus to go on contracting regularly and strongly when the patient was so deeply asleep under chloral as to be only very imperfectly awakened up with the expulsive efforts of labor.

"The dose of chloral to an adult for an hypnotic which I have usually employed has varied from 50 to 60 grains; but 25 to 30 grains suffice in some patients. In a case of long-standing sleeplessness, and which has resisted great doses of opium, Indian hemp, etc., 120 grains failed to produce any effect. When used for anodyne and other medicinal purposes, a continuation of smaller doses—as 10 or 20 grains several times a day—is sufficient.

"In administering chloral I have given it only by the mouth and by enema; almost always as a draught. It is somewhat acrid and pungent to most palates, and hence requires to be diluted well with water, and to have added to it a large quantity of syrup."

2. *Strychnine as an Antidote in Chloral Poisoning.* By Dr. O. LIEBREICH, Director of the Chemical Laboratory of the Pathological Institute, Berlin.

[*Berichte der Deutschen Chemischen Gesellschaft zue Berlin*, Jahrg. 1869, Heft 18, p. 673.]

I had an opportunity to witness the phenomena of a decided tetanus disappear after the use of chloral; the action of strychnine on man and animals manifesting itself also in the form of tetanus and trismus, I tried, in animals to whom strychnine had been given, to neutralize the poisonous effect of the latter by the use of chloral hydrate; and I indeed succeeded, even after the exhibition of poisonous (fatal) doses, to render the strychnine harmless. But it is necessary, to this end, to administer the chloral *immediately* after the exhibition of the strychnine, because the action of the former is not so rapid as that of the latter. Very favorable results, however, are obtained from the use of strychnine as an antidote in poisoning by chloral. Although hitherto, fortunately, no case of poisoning with this substance has become known, I

think this property of the strychnine might be utilized practically in cases in which it is necessary to abbreviate the action of chloral, or make it innocuous.

Fatal doses of chloral were given to two rabbits of equal weight; to the first, when the heart pulsated but feebly, a maximum dose of strychnine; the second animal died, whereas the first awoke in a comparatively short time without presenting the effects of strychnine or any other disorder after awaking. On the second day thereafter, the same dose of strychnine alone was given to this animal; ten minutes afterwards it died, under the well known symptoms.

G. B.

3. *A Peculiar Effect of Chloroform.* By Prof. Dr. HEGAR, and Dr. KALTENBACH, Freiburg im Breisgau.

[*Virchow's Archiv*, XLIX, 3. p. 437. 1870.]

The authors, engaged in investigations on the urine, accidentally met with the case of a pregnant woman, narcotized by chloroform for diagnostic purposes, whose urine contained a considerable quantity of albumen, besides epithelial casts and much epithelium from the urinary passages. On the following day the urine was without a trace of albumen. The same woman was again brought under the influence of chloroform a few days later; the urine voided previously contained no albumen, that which was removed immediately after, i. e. secreted *during* the narcosis, contained much albumen, numerous tryalins ("blasse"—pale) casts, and epithelial cells.

In subsequent investigations which the authors made the same phenomenon was observed in 2 pregnant women, 2 women undergoing respectively operations for prolapsus uteri and ovariectomy, and in 1 bitch chloroformed for the sake of experiment; negative results were obtained in 4 pregnant women and 3 persons operated on for proclidentia.

The urine reduced FEHLING'S solution, but contained no sugar.

G. B.

4. *The Influence of Chloroform in Promoting Cutaneous Absorption.* By AUG. WALLER, M.D., F.R.S., Geneva.

[*The Practitioner*, Dec., 1869, p. 329.]

. . . The human skin, in common with that of most of the mammalia, presents great obstacles to the absorption of most of the substances placed in contact with it. The dry condensed varnish presented by the cuticle

is the principal impediment. There is also another protective agency in the secretion of the sebaceous follicles to which M. HEBERT first drew attention, which forms an oily surface, preventing the contact of aqueous liquids with the cuticle. These two causes are so efficient in preventing absorption, that many physiologists still deny the power of the skin to introduce into the system any medicinal agents dissolved in water. . . .

But if, instead of employing aqueous solutions, we place various alkalis dissolved in chloroform in contact with the skin, we quickly obtain evident symptoms of the absorption of these agents, which may be carried to an extent sufficient to destroy life. When a mixture of equal parts of chloroform and tincture of aconite is maintained in contact with the human skin, it rapidly produces irritation and vascularisation, which, after augmenting during the first two or three minutes, subsides gradually, and the part becomes pale, and more or less insensible, with a local decrease of temperature. Still later the part becomes insensible to the prick of a needle, though it still retains an imperfect sensibility when pressed upon. In fact, the part is in a state of superficial paralysis, which does not extend to the deeper tissues. This state of anæsthesia will continue for several hours. The two principal agents producing it are chloroform and aconite. For if the former is used alone, a certain amount of insensibility may be obtained, but it is very imperfect and evanescent compared to that produced with the intervention of the tincture of aconite.

On the other hand, when the tincture of aconite is applied alone to the skin, it may be left undisturbed without producing either symptoms of irritation or absorption, such as are evidenced by hyperæsthesia in the first stage, or anæsthesia in the second stage of its action. In addition to the symptoms of anæsthesia, the mixture of aconite and chloroform is liable to produce vesication, and even a certain amount of ulceration of the cutis after having been maintained for a long time in contact with the skin. Besides these local symptoms of the absorption of aconite, there frequently exist others resulting from its general influence on the system, namely, slight nausea and a sense of depression.

On the lower animals the application of the same liquid is followed by similar local and general symptoms, which are more or less severe or fatal in proportion to the amount of surface of the skin exposed to the solution. For example, when a young guinea-pig has one of its feet dipped into the solution for about a quarter of an hour, the result is invariably fatal, as is shown by the following case :

"After five minutes' immersion, the part exposed became reddened and warm; this was quickly succeeded by complete insensibility of the integument. The foot was dipped in the liquid for ten minutes longer, then washed and dried. Soon after the lips became pale, the general temperature decreased, slight convulsions succeeded, accompanied by dyspnæa, frothing at the mouth, and efforts at vomiting. About three hours from the commencement of the experiment, all the above symptoms were much aggravated, and death speedily followed."

With a full-grown animal the results are the same, but it requires a much longer immersion to produce them. Similar results are obtained on the dog by the application of chloroform and aconite to the ear. Local insensibility is produced, followed by symptoms of poisoning, resembling those above-mentioned, on the guinea-pig, which likewise terminate in the death of the animal.

The following experiments were made on the albino rat, whose pupils are peculiarly available for the purpose :

The *modus operandi* consists in maintaining one of the feet of the animal in the required solution, while the pupil is examined from time to time to recognize the moment it begins to dilate. We at once observe by this means the extreme influence which the vehicle or dissolving body exercises on the activity of absorption; for according as a chloroformic, alcoholic, or aqueous solution is employed, we may obtain dilatation of the pupil in two or three minutes, or perceive no effect after a prolonged immersion.

With a solution of atropine in chloroform of one per cent. of the alkaloid we generally obtain dilatation of the pupil in from two to five minutes. When once the dilatation has commenced, it rapidly progresses until it reaches its maximum. If after immersing the foot for a few seconds it is withdrawn, dilatation of the pupils is produced, although more slowly and less powerfully. The same is still the result if, after withdrawing the foot from the solution, it is carefully wiped and dried, showing how rapidly the atropine and chloroform penetrate into the substance of the skin.

With an alcoholic solution of the same strength as the above little or no effect is obtained after half an hour or an hour.

With a solution of atropia in water containing a few drops of acetic acid absorption is also very slow, generally producing no dilatation after thirty minutes. When withdrawn from the solution and exposed to the air, a slight dilatation of the pupil is obtained after a short time.

Extract of belladonna applied over the leg produced no dilatation at the end of an hour.

With a solution of strychnine and chloroform, dilatation of the pupils was observed at the end of three minutes. After five minutes slight convulsions about the larynx were observed, extending afterwards to the extremities, which were soon followed by tetanic convulsions, and finally by death.

An alcoholic solution of strychnia produced no symptoms whatever of the presence of strychnia after thirty-five minutes.

When the atropine is dissolved in a liquid consisting of equal parts of chloroform and alcohol, a considerable dilatation is observed after three minutes.

With one part of chloroform and four parts of alcohol, atropine produced dilatation at the end of nine minutes. With atropine dissolved in essence of turpentine, little or no dilatation was produced while the ex-

tremity remained in the liquid, but if after ten minutes' immersion it is removed, dilatation of the pupils commences at once and soon attains its maximum.

It is almost superfluous to remark that with chloroform alone dilatation is not produced. . . .

A large number of varied experiments were performed on other animals, on men, and with different drugs, which led to the following conclusions :

1. Chloroformic solutions applied to the skin of man and animals are quickly absorbed, and produce local and general results according to the substances employed.
2. Alcoholic and aqueous solutions are either not at all or very slowly absorbed.
3. Chloroform easily traverses the dead skin by diffusion.
4. Alcohol does not traverse the skin, but produces an endosmotic current with water.
5. Skin exposed to chloroform in a state of liquid or vapor absorbs a considerable quantity of it.
6. On traversing the septal skin of the endosmometer, chloroform carries with it a certain amount of any alkaloid dissolved in it.
7. These observations sufficiently explain the rapidity of cutaneous absorption during life, without our having recourse to any problematic influence of sebaceous matter on the surface of the skin.

Editorial.

METEOROLOGICAL OBSERVATIONS AT ST. LOUIS, MO.

By A. WISLIZENUS, M.D.

The following observations of daily temperature in St. Louis are made with a MAXIMUM and MINIMUM thermometer (of Green, N. Y.). The daily minimum occurs generally in the night, the maximum about 3 P. M. The monthly mean of the daily minima and maxima, added and divided by 2, gives a quite reliable mean of the monthly temperature.

THERMOMETER FAHRENHEIT, 1870.

MARCH.			APRIL.		
Day of Month.	Minimum.	Maximum.	Day of Month.	Minimum.	Maximum.
1	26.5	44.0	1	38.5	43.5
2	24.0	44.5	2	42.5	54.0
3	32.0	35.5	3	43.0	61.0
4	34.0	39.0	4	38.5	60.5
5	28.0	43.0	5	35.0	62.0
6	34.5	37.5	6	36.0	66.5
7	21.5	34.5	7	42.0	67.5
8	21.0	35.5	8	51.0	62.0
9	24.0	53.0	9	48.5	59.5
10	38.0	66.5	10	48.0	70.5
11	46.0	57.5	11	48.0	72.0
12	24.0	54.0	12	48.5	77.0
13	22.0	36.0	13	58.0	82.5
14	30.0	52.5	14	64.5	83.0
15	10.0	30.0	15	32.0	55.0
16	17.0	24.0	16	34.0	39.5
17	13.5	41.5	17	28.0	45.5
18	26.5	50.5	18	32.5	59.5
19	37.5	58.0	19	45.5	62.5
20	48.5	57.0	20	45.0	67.0
21	32.5	54.5	21	43.0	73.5
22	37.5	56.0	22	53.5	88.0
23	31.0	51.5	23	59.0	87.0
24	36.0	59.0	24	67.0	88.5
25	41.5	59.5	25	54.0	68.0
26	39.0	52.0	26	58.0	82.0
27	37.5	54.5	27	61.0	83.5
28	37.0	55.0	28	46.0	51.5
29	38.5	58.0	29	41.0	65.0
30	43.0	46.5	30	49.5	72.0
31	29.0	40.5			
Means....	31.3	47.8	Means....	46.4	70.0
Monthly Mean...	39.5		Monthly Mean...	58.2	

REPORT OF ATMOSPHERIC ELECTRICITY, TEMPERATURE, AND HUMIDITY.

BASED ON DAILY OBSERVATIONS at 6, 9, 12, 3, 6, AND 9 O'CLOCK, FROM
MORNING TILL NIGHT, AT ST. LOUIS, MO.

1.—Monthly Mean of Positive Atmospheric Electricity.

Year	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.	Mean in 10 years.	No. of Thunder Storms.	Prevailing Winds.
1870	Mar.	5.1	6.8	5.5	3.9	7.4	4.6	5.5	7.4	2	nw. and w.
1870	April	7.7	9.4	6.5	4.8	6.4	6.6	6.9	5.5	1	nw. ne. se.

2.—Monthly Mean of Temperature, Fahrenheit.

Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month
1870.	Mar.	35.0	39.5	45.7	47.0	41.2	39.5	41.3
1870.	April	50.6	57.3	63.3	64.7	61.0	55.9	58.8

3.—Monthly Mean of Relative Humidity.

1870.	Mar.	79.8	70.7	59.9	55.8	62.1	73.6	67.0
1870.	April	73.4	55.1	47.6	46.8	51.0	63.1	56.2

The mean temperature of March, 41.3, was below its average: 44.4; and that of April, 58.8, above the average: 56.1. The quantity of rain and melted snow in both months, 2.95 and 2.42 in., was in both of them lower than their average: 3.81 and 3.96 in. They were comparatively dry months, which is the more surprising as in other parts of the country, especially in the North and East, rain and snow fell in unusual quantities, and the April rise in the Mississippi was considerable. The temperature in both months was very variable with a range of from 56 to 60 degrees, which happened often so suddenly that in March we had in one night a thunder-storm, followed by snowfall; and on the 17th of April a fall below freezing point proved so injurious to the peach, pear and cherry trees, then in blossom, that the prospect of a crop from them is quite small. The buds of the grape vines too were partly damaged, dampening the hopes of the grape culturists. The spring has generally proved a late one. Now, at the end of April, trees have mostly assumed their fresh garments, but foliage is still thin and the forest not yet in full dress.

THE SAINT LOUIS

Medical and Surgical Journal.

JULY 10, 1870.

Original Communications.

*ON FAILURE OF VISION, FROM DISEASE OF THE
RETINA, AS A SYMPTOM OF BRIGHT'S DISEASE.*

By JOHN GREEN, M.D., Professor of Ophthalmology in the Saint Louis
College of Physicians and Surgeons.

[In this paper, which was read before the Missouri Medical Association at its late meeting in this city, I have desired simply to call attention to failure of vision as an important symptom of BRIGHT'S disease, and one which in many cases may lead to the detection of this grave constitutional malady at a time when the other signs are still so obscure as not to excite suspicion.]

It was observed by Dr. ADDISON, more than thirty years ago (Guy's Hospital Reports, Vol. IV, 1839), that the grave cerebral troubles which arise in the course of BRIGHT'S disease are often preceded by nervous symptoms, among which he mentions headache, giddiness, and dullness of sight.

Ten years later, Prof. LANDOUZY, of Rheims (*Gazette Médicale*, and *Annales d'Oculistique*, 1849), called attention to the very frequent coexistence of amblyopia with BRIGHT'S disease, but it was vaguely referred to a cerebral origin, and classed among the nervous derangements incident to the progress of the malady.

In 1850, TÜRK, of Vienna, described certain changes in the minute structure of the retina in a subject who had died of BRIGHT's disease, thus throwing the first light upon the pathology of the affection of the eye (*Zeitschr. der k. k. Ges. der Aerzte zu Wien*, 1850, No. 4, quoted from ARLT).

The discovery of the ophthalmoscope by HELMHOLTZ, in 1851, followed almost immediately by its employment in the examination of the eye in disease, provided the means of studying the diseases of the choroid and retina in the living subject, and led to the speedy recognition, by many observers, of the pathological changes which had been demonstrated anatomically by TÜRK.

The morbid changes in the retina, as they appear when seen by the aid of the ophthalmoscope, have been admirably depicted by LIEBREICH (*Atlas d'Ophthalmoscopie*, Paris, 1863). An excellent description of the retinal changes, and a tolerable copy of one of LIEBREICH's plates, are contained in Mr. SOELBERG WELLS' late work "on the Diseases of the Eye," (London, 1869), a book which is now readily accessible to American physicians, and to which, therefore, I would refer for a detailed account of the anatomical lesion and ophthalmoscopical appearances. My present object is to call attention to the fact that failure of vision may be the first symptom to attract the serious attention of the patient and his physician, and that, in such cases, the ophthalmoscopic examination of the eye may reveal changes in that organ, so conspicuous as to command instant recognition, and so characteristic as to constitute a symptom of confirmed renal disease at least as conclusive as the detection of albumen in the urine.

In illustration of this point I have briefly to report four cases of BRIGHT's disease in which the changes in the retina as revealed by ophthalmoscopic examination first aroused the suspicion of renal trouble.

CASE 1.—Dr. S., about 35 years of age, consulted me early in the autumn of 1866, on account of a very decided

dimness of vision which had been gradually increasing since he had first noticed it a month or so before. He appeared much depressed in spirits, and was evidently in bad health, suffering from occasional severe attacks of pain in the back of the head, and having had several attacks of an epileptiform character. His extreme nervousness made it difficult to obtain any very satisfactory history of his case, nor could the friend who accompanied him give me much information.

The attempt to read revealed the fact that only large type (*pica*) could be distinguished, and that slowly and with difficulty. Examination by the test letters of SNELLEN showed that the acuteness of vision, as expressed according to this method, had become reduced to one-fifth or one-sixth of the normal. The pupils were quite small, and my proposal to dilate them by atropia was declined through fear of possible temporary interference with the patient's professional work.

The ophthalmoscopic examination, made under this disadvantage, revealed marked deposit of white glistening exudation around the disc of the optic nerve, obscuring its outline; there was also decided swelling of the disc, with some extravasation of blood in the form of streaks radiating from the point of entrance of the central artery and vein. The region of the macula lutea could not be examined, in the contracted state of the pupils, owing to the strong reflection of light from the cornea, but the extent of the retinal surface occupied by the exudation was so great as to favor the diagnosis of *retinitis nephritica*, rather than double *neuritis* from intracranial pressure obstructing the return of blood through the ophthalmic veins.

The very serious nature of the case was explained to a professional friend of the patient, and at my request an examination was made of the urine which revealed the presence of albumen in large quantity.

Dr. S. failed rapidly in health almost from this time; anasarca soon followed, and he died about four months

after I first saw him. I was subsequently informed by an intimate friend of the patient that his sight became much worse a few weeks after I saw him, and that it afterwards improved, so that shortly before his death he could read common print with ease, an occurrence perfectly in accord with many clinical observations supported by accurate ophthalmoscopical studies.

CASE 2.—J. H. McN., 40 years of age, residing in Crittenden Co., Arkansas, consulted me February 26th, 1868, in company with his physician, who had come with him to St. Louis. He was in rather feeble health and had been seen in consultation, with his physician, by two eminent practitioners of this city. Albuminuria was not suspected. The patient was referred to me for investigation of a recent failure of sight. The right eye had been lost as an organ of vision several years before, from an inflammatory attack of which he could give no intelligible history; this eye had, however, been recently inflamed for a second time, and it had been thought that the present failure of sight in the left eye might possibly be of sympathetic origin.

Vision was found to be reduced to about one-fiftieth of the normal, as expressed by SNELLEN'S method by the use of test letters, and the ophthalmoscope revealed the characteristic picture of nephritic retinitis. The changes were especially marked in the region of the macula lutea.

A chemical examination of the urine was made on the spot; the quantity of albumen was so large as to form a firm jelly on the application of heat.

The further history of this patient is not positively known.

CASE 3.—C. A. M., 25 years of age, had been nearsighted for many years ($M=1-9$). His vision was nearly normal as measured by the power of distinguishing letters, but he had lately noticed an appearance as of a cloud before one of his eyes, which he attributed to over-work at his profession as a draughtsman. His very intelligent medical adviser suspected sub-retinal effusion as a conse-

quence of the myopia, and referred the case to me for examination. The ophthalmoscope revealed the same retinal lesions as in the former case; the exudation being quite conspicuous in both eyes, but chiefly in the region of the disc of the optic nerve. The urine proved to be highly albuminous, but contained very few casts. Those observed were of the granular and large waxy varieties.

Mr. M. had not considered himself sick, although he was subject to frequent attacks of severe headache, but thought he had confined himself too closely to work within doors, and needed rest. Even after the detection of the nature of his disease it was difficult to make out any train of symptoms suggestive of renal disorder.

One week later Mr. M. left St. Louis for his former home in Massachusetts. On his way he took a severe cold in a sleeping car, and had scarcely reached his home when alarming symptoms of uræmic poisoning set in. He recovered from this attack, however, but gradually failed in health, and died in the summer of 1869, about six months after the first detection of the nature of his disease.

CASE 4.—Dr. C., about 55 years of age, an eminent physician of this State, consulted me August 4th, 1869, in company with one of the first physicians of this city, on account of failing sight. He could still see well enough to go about, but found it very difficult to read even in a strong light. He was not aware of any especial disease, although he considered himself as somewhat worn by the fatigues of practice and the heat of summer. The symptoms referable to the eyes were suggestive of cataract, and he was prepared for this diagnosis. The ophthalmoscope, however, showed that all the media of the eye were perfectly transparent, and that the defect in vision was the consequence of advanced retinal lesion in both eyes.

The diagnosis of albuminuria was communicated to the consulting physician, and was immediately confirmed by a chemical examination of the urine. The albumen was so abundant as to render the contents of the test-tube almost solid when heated.

I have received information that Dr. C. died three months after I saw him in consultation.

The four cases now reported sufficiently illustrate the most important features of the amblyopia of BRIGHT's disease. The one constant subjective symptom is failure of vision, which may be so slight as scarcely to attract notice, or so great as to incapacitate the patient from guiding himself. This may appear at any stage of the disease, and may increase and diminish or even almost entirely disappear after having reached nearly total blindness, while the fatal malady is steadily marching onward to its inevitable termination. It is absolutely painless in all its stages, and is marked by no external sign of inflammation. Occasionally, as in case 4, in an elderly person with otherwise normal eyes it is very liable to be mistaken for incipient cataract, on account of the general similarity of the subjective signs in the two affections. In case 1, the coexistence of serious head symptoms naturally suggested the diagnosis of amaurosis from cerebral disease. Cases 2 and 3 seemed to point to local lesions of the eye, in the one instance to commencing sympathetic ophthalmitis, and in the other to choroidal and retinal changes dependent on the distention of the eye-ball incident to progressive myopia.

The diagnosis of albuminuric retinitis by the ophthalmoscope is usually a matter of great simplicity. The principal source of possible mistake lies in the close resemblance which some cases of this disease bear to infiltration of the disc of the optic nerve and the retina immediately around it, occurring simultaneously in both eyes from obstructed venous circulation dependent on intracranial pressure from effusion, etc. Very recently, too, a case has been most carefully studied and reported by Dr. H. D. NOYES, of New York, in which the ophthalmoscopic appearances were absolutely identical with those which belong to albuminuric retinitis, but in which the disease was

unmistakably not BRIGHT's disease but *diabetes*.* This case, taken in connection with the microscopical investigation of the retinal changes in a case of diabetes observed by TREITZ and reported by ARLT,† leaves scarcely a doubt of the identity of the retinal affection, and goes far, therefore, to confirm the few earlier but somewhat defective reports of retinitis associated with glycosuria.

The important fact for the general practitioner of medicine, to be deduced from the study of cases like those now reported, is that simple failure of vision, of whatever grade, and especially when it occurs simultaneously or nearly so in the two eyes, may be a symptom of grave renal disease which has not yet revealed itself by other marked signs. The chemical and microscopical examination of the urine becomes, therefore, an imperative duty in this class of cases in which we should, *a priori*, expect least from it.

617 LOCUST STREET, April 20th, 1870.

*CLINICAL LECTURES ON HYDRARTHROSIS, HÆMATO-
ARTHROSIS AND PERFORATING WOUNDS
OF THE KNEE JOINT.*

By LOUIS BAUER, M.D., M R.C.S. Eng., Prof. of Surgery, St. Louis
College of Physicians and Surgeons, etc.

I.

GENTLEMEN :—The two patients, presented to-day for clinical consideration, are both suffering from an affection of the right knee-joint. Both exhibit considerable distention of the capsular ligament, with consequent changes in the contours of their respective joints; and in this particular the cases conform. In each there is a copious collection of fluid which you may drive from one part of the joint to

* Transactions of the American Ophthalmological Society, Fifth Annual Meeting, 1868, p. 71.

† Krankheiten des Auges, Abth. III, p. 117.

another, interpose between the patella and the subjacent bones, and thus give to the former an undulating motion. In every other respect the symptoms differ widely.

Both patients are laborers; the one 35, the other 26 years of age; their appearance denotes tolerably good constitutions; their vital organs seem to be in good order, and their family records satisfactory in reference to the health of their respective ancestry.

A has always enjoyed a fair state of health; B, in early childhood, sustained a fracture of the right tibia and fibula near the knee-joint, which has united in a slightly angular position, without, however, giving him any subsequent trouble.

The articular affection of A dates back seven months, when he suffered a torsion of the right knee, soon after followed by a gradually increasing swelling of the joint. In B the trouble is but of 4 days standing, without any assignable cause and ushered in suddenly.

The former has suffered very little pain or inconvenience, and persisted in his customary occupation until he entered this Institution; the latter has been bedridden from the very beginning, and experienced considerable pain and constitutional perturbation. One is quite at his ease, can fully extend and flex the affected extremity and derives no pain from either motion or pressure; the other, on the contrary, is irritable and feverish, keeps his limb in a fixed and flexed position, and suffers severe pain at the joint when stirred or touched. The integuments are of ordinary appearance in both cases; there is, however, œdematous infiltration and some tumefaction of the peri-articular structures of B, whereas no trace of structural alteration can be detected in the other. You notice increased temperature about the body and still more so about the affected knee-joint of the second patient, whilst there is no such change in the first. The swelling of either joint exhibits marked differences. In A there are circumscribed, bulky protrusions along and above the patella, whereas there is an even and uniform distention in B's case.

We entertain no doubt that there are likewise substantial differences in the constitution of the respective intra-articular liquids, which we shall exhibit to you hereafter, for we propose to perform paracentesis of both joints and evacuate their fluid contents. From former researches of this kind it may be safely predicted that both fluids will be of alkaline reaction, contain a large complement of albumen, capable of being converted by heat into a tenacious pulp; the one (A) will remain serous, the other (B), containing fibrine, will coagulate when exposed to the air. In A's case the microscope is not likely to disclose more than traces of blood, synovial epithelium and oil globules, whereas in the second we shall find copious epithelium, fibrine and pus.*

The instituted clinical comparison of the two cases must have satisfied you that we have to deal with two distinctly different affections. The one is obviously hydrarthrosis, the other acute synovitis, or articular catarrh, as VOLKMANN has termed it. It seems almost impossible to confound them, so great is their clinical disparity. Yet, you will find surgical authors speak of acute hydrarthrosis by which they can mean nothing else than articular catarrh, on account of the copious intra-articular collection of a more serous fluid coexisting with inflammatory symptoms.

In studying the subject more thoroughly, you will find that the pathology of hydrarthrosis is by no means settled.

Most authors assume, with Sir BENJAMIN BRODIE, that hydrarthrosis is invariably the result of an inflammatory action, and they ascribe to it all those manifold pathological changes met with in protracted subacute and chronic inflammation of the synovial lining.

In order to show that there can be no equivocation, you need but to peruse the cases of hydrarthrosis recorded by Sir BENJ., BLANDIN, BONNET and others. You will then be satisfied that, in their estimation, chronic synovitis and

* The subsequent microscopical investigation gave almost the exact results as anticipated.

hydrarthrosis are one and the same pathological conditions. More or less these views pervade the more recent works on surgery, with this difference, however, that there is some discrimination noticeable. Thus, for instance, GURLT* and VOLKMANN† refer to cases of confirmed hydrarthrosis, in which pathological investigation proved to be but negative, that is to say, no morbid changes whatever were found in the affected articulations. In their opinion such cases should be counted among the exceptions, the rule being otherwise. On the other hand, some pathologists and surgeons have recorded facts which admit of a very different interpretation. Thus, for instance, JOHANNES MÜLLER and ROKITANSKY describe the synovial lining in hydrops articuli as of velvety appearance, which, under the microscope, discloses denticritical villi or long tubes interweaving with one another. Fat, either free or capsulated, is an ordinary constituent; connective and elastic fibres, cartilaginous and osseous elements incidentally engrafted upon their structure. Whether these denticritically divided villi are the altered fimbriæ articulorum of GOSSELIN has not yet been determined, but the probability is in favor of this view.

The case of DUPUYTREN deserves especial mention. This distinguished surgeon had the rare opportunity of examining the two knee-joints of a culprit immediately after execution. They presented all the pathognomonic symptoms of chronic hydrarthrosis; the right knee-joint was distended by a collection of 12, the left by 13 ounces of serous fluid. The integuments were not changed in color or texture; the synovial capsule extended 4 inches upwards in front of the femur. On either side of the lateral ligaments the synovial sac was protruding; the posterior wall of the capsular ligament was not pinkish dis-

* Beiträge zur vergleichenden Anatomie der Gelenk-Krankheiten, Berlin, 1856.

† Pitha & Billroth, Handbuch der allg. and speciellen Chirurgie.

coloration and the capsule was slightly thickened; the synovial lining was covered with small eminences of unequal size and shape, out of which the same liquid could be pressed; the neighborhood of the knee-joints was as healthy as that of the other joints.

Supported by anatomico-pathological observations, RICHET contends that in hydrarthrosis the synovial capsule is pale and bloodless, and the joint entirely devoid of those formative or destructive structural changes inseparable from both acute and chronic synovitis. In fine, it is held that acute synovitis may occasionally terminate in chronic hydrarthrosis (GURLT, VOLKMANN, ERICHSEN and BARWELL).

According to these versions there are several forms, to wit :

1. Acute hydrarthrosis with all the attributes of inflammatory action in the joint identical with articular catarrh.
2. Chronic hydrarthrosis identical by structural lesions with chronic synovitis, either primary or consecutive.
3. Hydrarthrosis which is either without structural lesions of the synovial sac (RICHET), or the latter manifests that peculiar alteration to which MÜLLER, ROKITANSKY and DUPUYTREN refer.

If hydrarthrosis means anything at all in surgery, it signifies a pathological condition of its own. That there is no conformity between the three varieties, except the collection of serous fluid in the articular cavity, is evident.

BRODIE tells us that in his case the synovial lining of the knee-joint was darkened and as vascular as in conjunctivitis. At the anterior portion of the joint he noticed deposits of plastic lymph; the cartilage presented a tendency of detaching itself from the condyles of the femur. BLANDIN* saw flakes in the serum; the inflammation was particularly intense at the folds of the synovialis. In chronic hydrarthrosis he found disintegration of cartilage and bone, besides swelling and spongy appearance of the synovial sac.

* Dictionnaire de méd. et chir. pratiques.

The case of BONNET* comprised hydrarthrosis of the left knee-joint. It had resisted several modes of treatment and had been but temporarily relieved by "transcurrent cauterization." About that time the right became likewise affected. Having taken cold, the patient was attacked with pneumonia and died. The autopsy revealed some serum in the left knee-joint; synovialis opaque, thickened and fibrous; its inner surface red and vascular, more particularly about the patella, but healthy at the crucial ligaments. The places at which the synovialis was discolored and vascular were covered with pseudo-membranes partly of recent date, partly organized and attached. The same condition, but of lesser degree, prevailed at the right knee-joint.

In our estimation the morbid changes in the three preceding cases denote active and formative synovitis. BLANDIN's case of chronic hydrarthrosis is simply chronic synovitis with fungoid granulations. If the fluid contents of those joints had been microscopically examined, pus would unquestionably have been observed, as we expect to find it in the case of our second patient.

It is not unlikely that the patient of BONNET died from multiple abscesses of the lungs, the result of pyæmic infection. Unfortunately the clinical characters of the cases referred to have not been adduced, otherwise we might find them very different from that presented by the first case under consideration.

It would seem as if the diagnosis of those cases had been exclusively based on the collection of interarticular fluid, irrespective of the clinical and anatomical incongruities which they presented. The propriety of such inferences is very questionable. The serous transudation in pleuritis is in cause and composition a very different morbid product from that of hydrothorax; yet no well informed pathologist could possibly confound the one with the other. Like

* *Krankheiten der Gelenke.* Uebersetzt von Dr. G. KRUPP. Leipzig, 1847; p. 269.

differences unquestionably occur in the affections of the synovial membrane. We can well understand, nay, we have personally observed copious and inflammatory trans-fusions in joints which but in part organized into pseudo-membranes and interarticular trabeculæ more or less interfering with the mobility of the affected joints; whereas the serous portion remained for a lengthy period, keeping up a subacute irritation. Analogous conditions are presented by some forms of exudative pleuritis. The collected fluid stamps neither the one as hydrarthrosis nor the other as hydrothorax. We have furthermore to reject the identity of chronic synovitis and hydrarthrosis, because the two diseases have nothing else in common but the presence of some, mostly differently constituted, articular fluid.

If hydrarthrosis is to retain its place in surgery to practical advantage, it should be kept apart from synovitis and the name restricted to those cases of articular affections which are characterized :

1. By an entirely painless distention of a joint.
2. By a collection of aplastic fluid.
3. By perfect integrity of bones, articular cartilages and periarticular structures.
4. By the absence of interarticular adhesions, muscular contractions and malpositions.
5. By unimpeded function of the extremity, and in fine,
6. By such alterations of the synovial membrane which bear upon secretion and absorption of the synovia only.

Such an affection is fully compatible with the respective statements of RICHET, MÜLLER, ROKITANSKY, DUPUYTREN, and a few others; and such a case is instructively exemplified in the case first submitted.

The definition of hydrarthrosis is thus narrowed down to a comparatively insignificant number of cases, but brought in conformity with its causes, its pathological anatomy, its symptoms, its prognosis and treatment; and above all, we shall thus get rid of the prevailing confusion in diagnosis. All these points will be more prominently developed in the

progress of our discourse. The opponents of this view will probably charge us with reviving an old pathological theory, which for a century has served as a *pons asinorum*. The theory, indeed, is an old one, but it had never before as safe a histological foundation as at present. The profession owe to the patient investigations of VON RECKLINGHAUSEN and DYBKOWSKY the knowledge of the fact, that the lymphatic vessels terminate on the pleural and peritoneal surfaces with open apertures. RUDOLPH BOEHM, of Vienna,* has but recently disclosed the same anatomical arrangement on synovial surfaces. The rapid resorption of fluids from the respective cavities is thus physiologically explained.

It is equally comprehensible now why in inflammations of the serous membranes the resorption of the liquid portion of transudations should be so protracted, because the lymphatic apertures are mechanically obstructed and thus prevented from performing their office, until the plastic deposits have become completely organized and endowed with the normal structural elements.

This pathological fact, so well known and practically applied in both pleuritis and peritonitis, has been totally ignored in synovitis; hence the misapprehension of the subject. To the discrimination of an acute and chronic form of hydrarthrosis and the conversion of one into the other, being merely founded on the fluid condition of inflammatory transfusions, no practical importance can be attached. There are, nevertheless, two varieties of hydrarthrosis which claim clinical recognition. In one the secretion of synovia is excessive whilst resorption maintains its normal standard; in the other secretion is normal, but resorption either below par or entirely suppressed. The former variety comprises those cases which spontaneously and suddenly spring into existence with copious collections of synovia, last but a few days and disappear as rapidly.

* Beiträge zur normalen and pathologischen Anatomie der Gelenke. Würzburg, 1868.

Or if the cause be recurrent, the collection may vary, being at times lessened or augmented. If the secretion is augmented by an ephemeral, mostly constitutional cause, the morbid product is promptly carried off as soon as the cause has subsided. Transitory passive hyperæmia serves probably as proximate causation. This variety, in point of duration, may appropriately be accepted as the acute form of hydrarthrosis, with the distinct understanding, however, that its symptoms do not vary in point of intensity or its articular fluid in composition with that of the second form. Probably the only change in the conditions of the synovial lining is that of a reddish hue, but it may also be pale and bloodless, as RICHET has observed it.

The second variety manifests itself by a slow and steady increase of synovia, and consequently by a steadily advancing distention of the joint, occasionally to an enormous size. This is the so called chronic form of hydrarthrosis, which as a therapeutical object, resists almost all modes of treatment and against which innumerable remedies have been suggested and vainly tried. The therapeutical management of most of them clearly elucidates the fact that the theory of inflammation has been more or less completely ignored.

Some other differences in the form of the swelling and in the appearance of the synovia may present themselves, without, however, affecting the character of the disease. Thus, for instance, in young individuals, the subcrurean bursa may, by a large opening, communicate with the knee-joint, and, participating in the distention, present a figure of 8 swelling.

Again, the fluid may differ in its specific gravity from 1,002 to 1,012; instead of a straw color present a pinkish hue from a considerable admixture of blood, or a milky opacity from fat globules; be almost limpid as water, or condensed to the consistency of the white of an egg or colloid substance. In general it may be said that the less the collection the more tenacious is its consistence, and *vice versa*.

The knee-joint is more often than any other articulation the seat of hydrarthrosis, not so much on account of its size, as maintained, but because it is more than any other exposed to traumatic injuries.

During the past 15 years sixty-nine bona fide cases of hydrarthrosis have come under our observation. Of these, fifty-one cases could be distinctly traced to traumatic causes, particularly such as affect but the capsular apparatus to the exclusion of bone, periosteum and cartilage. Prominently among them is a more or less violent twist or torsion of the joint, which happens when the foot is firmly held in a fixed position and the body turned in another direction. Such injuries especially are incurred in carrying heavy weights upon the shoulders or the head, more particularly when the ground is uneven and slanting; or in stepping from a vehicle, or wrestling. Next is the excessive use of the joint in long marches, running and ascending hills and the staircases of high towers. In fine, kneeling at very acute angles of the extremities or stooping in zig-zag positions.

We have specified these different traumatic causes as we have ascertained them from our patients. There may be many more of this description agreeing in the *modus operandi* with those mentioned. We deem them, however, sufficient to exemplify the character of the injuries likely to excite hydrarthrosis.

It should, however, be borne in mind that the causes just mentioned need not forthwith be followed by serous collections. Weeks may elapse before hydrarthrosis appears. Sometimes the disease may quickly follow the injury, but the accumulation be so trifling as to be overlooked by the patient, until the distention is well marked even to the inexperienced.

Again, to syphilis and gonorrhœa has been assigned a part in the causation. The observations in reference to the former are but scanty. We have seen but one case of suspected syphilitic origin.

Whilst suffering from secondary syphilis, hydrarthrosis had developed in both knee-joints in a young clerk employed in a hardware store in which he had to stand, lift and carry heavy articles. The syphilitic symptoms were gradually removed by appropriate means, but the treatment remained ineffectual upon the hydrarthrosis, which rendered the causal connection of the two rather problematical.

Gonorrhœa, according to the testimony of reliable observers, is apt to befall joints metastatically. Our second patient ascribes to this same cause his knee trouble; at the same time he had been freely using powdered cubebs. The few cases of this description, we have seen, were of decided *inflammatory* character and ephemeral duration; they could not be grouped with hydrarthrosis, manifesting themselves as articular catarrh with sero-purulent collections in the respective joints.

In fine, we find the ætiology completed by rheumatism and cold as common causes of the affection in question. If we credit French authors, the marshy valleys of France are endemically productive of hydrarthrosis along with intermittent fever and rheumatic swellings. We apprehend that similar endemic and local conditions prevail in the Mississippi valley. During the brief period of our practice in this locality, we have had under observation no less than 15 cases of hydrarthrosis. We are, of course, unable to specify the remote cause, and must reserve it for further investigations whether employment, temperature, atmospheric moisture, or malarious evaporations of the soil, either separately or conjointly, are at work in producing the disease which is the subject of our discourse.

The essential differences in the character of synovitis and hydrarthrosis become still more prominent when the comparative prognosis of the two is considered. The former constitutes, as you are aware, a formidable disease of an articulation, productive of interarticular adhesions and locomotive impediments. In its advance it leads to disintegration of the articular components, eventually

to pyarthrosis and caries, with all the accompaniments thereof, whereas hydrarthrosis, though frequently a most protracted affection and renitent in its treatment, scarcely ever endangers the structural integrity of the affected articulation; neither does it constitute an aggravating impediment to locomotion or endanger life. Thus far the two diseases bear no comparison at all in a prognostic point of view.

The so called acute form of hydrarthrosis, as we have qualified it, is obviously the milder form. It springs rapidly into existence, continues generally but a few days, and disappears as speedily, without leaving a trace of the collection or any impediment whatsoever, however threatening its symptoms may have been. About four years ago, I was subject to such an attack, which arose from no other cause than making a mis-step and slightly twisting the knee-joint in alighting from my vehicle. About a week afterwards, I was disagreeably surprised by discovering a copious collection of serous fluid within the joint. It was accompanied with no pain whatever, nor did it in any way interfere with my constitutional wellbeing. A few days' immobilization of the knee sufficed to remove the trouble so completely, that I have not since been reminded of it by any symptom.

Chronic hydrarthrosis is, of course, a more obstinate affection, but withal susceptible of speedy and certain relief, as we have had ample opportunity of observing.

In the consideration of the following portion of our lecture you will likewise realize the differences between hydrarthrosis and synovitis. What will prove beneficial in one will scarcely be thought of in the other.

The treatment of hydrarthrosis of the knee-joint is exceedingly simple, and resolves itself into two indications:

1. The removal of the serum, and
2. The re-establishment of the proper organization and function of the synovial sac.

To attain the objects in view, internal and external remedies have been commended. Among the former,

GEMELLE's treatment, with large doses of antimonii et potassæ tartras, was the most prominent; he reported to the Academy of Medicine of Paris, in 1840, 28 cases treated successfully. BONNET, however, thinks, and we coincide in his opinion, that the cases of GEMELLE were of recent date, and consisted of those ephemeral rheumatic collections which are said to be so exceedingly frequent in France, and which disappear, with very few exceptions, spontaneously. The local remedies suggested to meet the first indication are numerous, to wit: compression with roller or plaster strips, blistering (VELPEAU), the application of ointments, with mercury, iodine, antimonial preparations, camphor, etc., cold douche, and lastly, actual and potential cauterization. The application of the hot iron has been particularly recommended by Prof. BONNET for its efficacy; yet later, he has preferred iodine injections, evincing thus conclusively that his confidence in the hot iron has been sadly shaken. In the course of our surgical career we have met with fair chances to put the remedies just enumerated to the test, yet the results attained by them, either singly or collectively, did not come up to our expectation, and for obvious reasons; for their *modus operandi* conjointly presupposes the synovial membrane in a fit condition for absorption, which does but exceptionally exist. As the results of those remedies depend on mere chances, and admit of no rational calculation, we have for years dispensed with them, and been more successful for it.

The *direct* removal of the serum from the articular cavity may be accomplished in various ways, namely, by free and subcutaneous incisions, and by puncture of the synovial sac.

BOYER was the first surgeon who freely entered the joint with his knife, in order to remove the articular serum, and to close up the whole source of secretion by granulation. He treated in this way four cases, of which three recovered, retaining in part the mobility of the operated

joints; in the fourth case the suppuration was so violent as to demand amputation.

BOYER'S proceeding has been unfairly condemned as hazardous and daring, chiefly on the ground that the exposure of articular cavities to the atmospheric air invariably gives rise to most dangerous and violent reaction, periling limb and life. However good this argument holds with reference to healthy joints, it is entirely inapplicable to affected ones. Numerous observations on record tend to show that the morbid process materially diminishes the susceptibilities of synovial and serous membranes, and that in many instances their exposure to atmospheric air may take place with impunity, without any reaction whatsoever. The free incision is decidedly the most direct remedy for the radical cure of hydrarthrosis, fulfilling as it does both indications; and this method would still command consideration in obstinate cases.

Subcutaneous incision of the capsule, for the avowed purpose of relieving joints from their morbid contents, has been commended by GOYRAND, of Aix, and, cautiously performed, will render good service. But in our opinion it possesses no practical advantage over and above the simple puncture. Both operations are equally useful in promptly relieving the joint from its serous contents, in their ulterior effects but palliatives.

For the performance of these operations, the greatest care and precaution has been enjoined by surgical writers, with reference to the exclusion of atmospheric air, and justly so, for its entrance into the articular cavity is likely to produce additional troubles. But the means recommended to guard against such an accident are totally inadequate. A valvular opening may suffice to exclude air, after terminating the operation, but it can decidedly not do so whilst the canula of the trocar still connects the surface of the body with the articular cavity.

NELATON and other surgeons complain of never having seen the serum run from the articular cavity other

than slowly and languidly. Such facts render obvious the danger in puncturing joints in the manner hitherto adopted.

In order positively to prevent the entrance of air, it is necessary to make the serum issue from the joint with velocity, and without interruption, until the last drop has been removed. To accomplish this object, the limb should be brought into a straight position previous to the operation, which has the advantage of closing up a part of the articular cavity between femur and tibia, and in forcing the whole contents into the anterior space of the synovial sac. This can be done without any difficulty, inasmuch as there are no retractions of the flexor muscles, and no articular adhesions to oppose.

Assuming the extremity to have been brought to full extension, a flannel bandage should be applied from the toes upwards to the protuberance of the tibia. Next, graduated compresses should be placed in the popliteal space, along the ligamentum patellæ, and upon the latter itself, and firmly fastened by ascending adhesive strips, surrounding the whole joint. This proceeding drives the entire liquid into the cul-de-sac of the synovial membrane, and retains it there under great pressure. If the articular cavity thus prepared is punctured or subcutaneously incised, its contents will escape with such vehemence as to render the entrance of air absolutely impossible. Whilst the liquid is thus escaping from the joint a finger should move across the cul-de-sac towards the wound, in order to close it in the very moment that the liquid stops flowing, whilst the other hand removes the canula. Such is the mode of preparing the joint we have adopted in our cases, and we can state here, that we have thereby not only facilitated the operation, but rendered it perfectly harmless.

It has been already remarked that simple puncture or subcutaneous incision act but as palliatives in removing the articular serum for the time being. As in hydrocele, the serum soon reaccumulates, unless other measures are resorted to, calculated to prevent relapse. Thus

LARREY applied *moxæ* after puncture, and relates the cure of an enormous serous collection of the knee-joint by ankylosis (?), whereas CARRIER, in Lyons, effectually combined compression with it. In what manner CARRIER compressed the joint we do not know, nor are we at all conversant with MALGAIGNE's proceedings, who, it seems, adopted CARRIER's plan, without meeting, however, with the same satisfactory results; yet that we do know, that by the compression of the joint executed in the manner described by means of graduated compresses, circular adhesive strips, and subsequent placing of the affected limb in a straight splint, we have succeeded in permanently relieving every one of our cases of hydrarthrosis of the knee-joint, having been obliged but in a few to repeat the operation once or twice.

Thus the treatment of hydrarthrosis by puncture and compression combined, commends itself to the consideration of surgeons.

Some years ago, another proceeding was introduced for the treatment of hydrarthrosis. The analogy of hydrocele with hydrarthrosis induced BONNET and VELPEAU to try the efficacy of stimulating injections in the latter, particularly with tincture of iodine. The results thus far seem to have surpassed their most sanguine expectation. They maintain that these injections may be practised with impunity, without danger or fear of excessive reaction; that in no instance suppuration ensued, and that in most the mobility of the joint was preserved. Other surgeons equally creditable have not met with the same good results. NELATON amongst others has related some instances of most violent reaction and suppuration after the injection of iodine, and in some amputation had to be resorted to. Having had no personal opportunity to observe the therapeutical effects of iodine injections into joints affected with hydrarthrosis, we naturally hesitate to offer an opinion on its therapeutic value. We are, however, persuaded to look upon paracentesis and compression as both the mildest and

least hazardous, and they should, therefore, be preferred in all minor cases. Should it repeatedly fail, injections might be employed, and in very obstinate and inveterate cases we should not hesitate to adopt BOYER's plan of free incision into the joint and closing its cavity by granulation.

II.

GENTLEMEN :—The term hæmatoarthrosis implies a collection of blood within an articular cavity. It is generally produced by *severe contusions* directly pertaining to the surface of the joint, as for instance falls, blows, or kicks. There may be likewise integumentary lacerations, but there are always rents of the synovial sac, sometimes partial detachment of either crucial ligament, with ruptures of vessels, followed by hæmorrhage. The blood collects within and distends the joint, changes its contours in the very same manner as the serum in hydrarthrosis, and in fact engenders mostly all the symptoms which characterize that disease, the cause alone suggesting the differential diagnosis. Usually the blood remains fluid in the joint, not being exposed to the action of either atmospheric air or of any chemical substance that could induce coagulation.

The blood presents in other respects some marked changes :

1. The greater alkalinity of the synovia renders it of a darker and brownish hue.
2. The red corpuscles, from endosmosis of watery elements, are of globular form ; its hæmato-globuline partly or entirely lost.
3. In cases of old standing the corpuscles are crenated, irregularly contracted. partly filled and partly covered with fat globules.
4. In recent cases the changes are insignificant, and the serum may have preserved its coagulability which is decidedly wanting in old collections.

5. With the blood are mixed numerous epithelial cells, partly occupied by fat granules so as to give them the appearance of GLUGE's inflammation corpuscles.

6. Rarely are the elements of pus found under these circumstances.

7. A few shreds of fibrine may present themselves with the object.

You remember the case of a mason who applied to the surgical policlinic of the college some two months ago. He had fallen from a scaffold 8 feet high and struck the floor with bent knees. Swelling in the more severely injured knee at once ensued without much inconvenience. At any rate he continued his usual work for about two years, the distention gradually diminishing.

The case of a young Israelite, but recently at the City Hospital, will likely recur to your mind. He had received a kick from a horse at the inner side of the patella, causing laceration of the integuments and a considerable hæmorrhage into the knee-joint. The pain was tolerably severe for a day or two, obviously from the injury of nerves, but the synovial lining more immediately concerned in the presence of the hæmatoarthrosis remained intact and recovery followed promptly the paracentesis.

The present case, which gives the occasion of our clinical remarks, has like the first been brought on by a fall from a scaffold, for the patient is a hod-carrier. The injury to the knee was somewhat lessened by the patient striking his body in several places. It is by mere accident that we have discovered the trouble of his knee at all, as it gives him no pain or inconvenience. He sought relief for the pain in his side alone, where two ribs were fractured.

We may, therefore, safely say that serious consequences but rarely attend interarticular hæmorrhage. It takes, however, many months to accomplish the complete resorption of the extravasated blood, and during this time it remains a source of mechanical inconvenience and of anxiety to the

patient, which is not entirely unfounded ; for exceptionally, and from as yet unexplained causes, the blood undergoes decomposition and thus becomes an irresistible irritant to the synovial lining, superinducing inflammation and sup-puration of the joint. We have met with one case of this description, in which the limb was barely saved, though not without serious impediment in locomotion. With this sword of DAMOCLES suspended over the patient, we cannot hesitate in interfering.

The treatment we have adopted in former cases, and which has returned most satisfactory results, is the same as in hydrarthrosis. We propose, therefore, to bandage the limb up to the knee, drive the blood into the cul-de-sac by ascending strips of adhesive plaster, puncture the outside of the cul-de sac, and, lastly, immobilize the limb by a well padded iron splint applied to the posterior surface of the extremity, and extending from the tuber ischii to the foot inclusively. Sometimes hydrarthrosis combines with interarticular hæmorrhage, and relapse of the former may necessitate repeated puncture. A fort-night generally suffices to vanquish the whole trouble.

III.

GENTLEMEN :—The patient, Michael Reilly, æt. 21 yrs., a native of U. S., of slender build and laborer by occupation, was, on the 12th of April ult., sent to this hospital. You have seen his case with me up to the present date, June 1st, and followed with lively interest all the various phases through which he has since passed. I propose to recapitulate the whole case and make such clinical deductions as may be warranted.

CASE I.—*The injury to his left knee-joint* was inflicted on the 8th of April by himself. In using a drawing knife for splitting kindling-wood, the knife slipped and transversely entered his knee-joint about half an inch below the patella. The wound was of semilunar form, 2 inches in

length, had an ascending course, completely divided the ligamentum patellæ and opened the articular cavity. The hæmorrhage from the wounded arteries of the articulation had been very profuse for about half an hour, when Dr. WM. S. BARKER secured the bleeding vessels, closed the wound by sutures and suitable dressings. The hæmorrhage for the time being seemed to be arrested, but soon returned by oozing through. At a later hour, my friend, Prof. SCOTT, joined in the treatment of the case, and the combined efforts of the two attendants were in a measure successful in arresting the loss of blood. The pain, which had been moderate for the first 24 hours, became gradually so severe as to arouse serious apprehensions. At this juncture I was requested to assist in the management of the case.

I first saw the patient on the 10th of April, at 5 P. M., together with Drs. SCOTT, BARKER and STEELE. He was lying on a couch in a rather uncomfortable and cramped position, being greatly excited and flushed from fever and darting pain. In order to render the examination painless and thorough, the patient was brought under the full effects of chloroform and then placed upon a table. After removing the dressing, we satisfied ourselves that the bleeding had stopped; that the bloody discharge came from the joint, within which a considerable quantity of blood had accumulated and coagulated. The patella was, of course, displaced and drawn upwards by the quadriceps muscle. Our first effort was to cleanse the joint from blood, and then to immobilize the limb in an extended position by means of stiff leather, the only material on hand. The wound itself was kept uncovered so as to be accessible to local applications. When the patient recovered his consciousness, he expressed himself materially relieved. Having no better accommodation, we had to replace him on his couch. His condition continued on the whole satisfactory for a day or two, but the suppuration of the wound on the one hand and the insufficiency of domestic surround-

ings on the other, induced us to cause his removal to the hospital. Here we surveyed his condition on the 13th of April, when you had the first opportunity of seeing the patient. He had borne the transportation well, had very little pain and no fever, the wound suppurating freely. On that occasion the leather splint was replaced by an iron one, the limb re-dressed and suspended in Dr. CLARK's apparatus, and extension applied to draw down the patella.

Despite the enfeebled state of our patient, in a very few days the most luxuriant granulations sprung up in the wound, covering and connecting the fragment of the ligamentum patellæ. The opening into the joint was thereby so obstructed as to interfere with the discharge. Besides, burrowing of matter took place at each angle of the integumentary wound, so as to necessitate dilatation of the articular opening and several counter openings to secure the free issue of pus. In place of elevation, we gave to the extremity an inclining position by raising the hips and discontinuing the extension. At this juncture light pyæmic symptoms had set in, with repeated rigor and corresponding rise in both pulse and temperature, whilst appetite failed. The pain was by no means excessive, the discharge, however, profuse, thin, and decomposing. For several days large doses of quinine were required to control the pyæmic symptoms, whilst the burrowing pus was promptly followed up with the knife. Thenceforward the wound healed kindly; the quality of the discharge steadily improved under the action of warm water fomentation and carbolic acid. Recurring attacks of intermittent fever, however, kept the patient debilitated and evidently protracted his recovery, which has at last been reached. We have removed the ordinary splint and replaced it by the interrupted one, which will enable him to leave his bed and move about on crutches.*

* The patient left the hospital on the 10th of June, with a limb almost perfectly restored to its former usefulness.

This case, gentlemen, is certainly one of the severest that a surgeon may be called upon to attend. The wound was large, and the aperture into the joint not less than 1 1-2 inches. The coincidental severance of the ligamentum patellæ and retraction of the knee-pan tended to keep its margins apart. The hæmorrhage had not only been a source of great debility to the patient, but likewise had filled the joint with blood which, exposed to the air, had coagulated, begun to decompose and thus become a formidable irritant to the synovial lining of the knee-joint. At the time when my services commenced, the articular surface was intensely inflamed and the constitution of the patient gravely shaken. To render bad still worse, the patient is one of those individuals in whose configuration a leaning towards tuberculosis of the lungs should have been suspected; and yet with all he has recovered under the most trying and aggravated circumstances and, what is still more surprising, with a partial mobility of the affected joint. What traction failed to accomplish, namely, to exhaust the quadriceps muscle and to keep the patella in proper position, has been effected by cicatricial tissue; we find that bone almost in its proper place.

The treatment has been exceedingly simple; besides the immobilization and the rest of the joint by means of splint and bandage, cleanliness and warm water dressing have been chiefly relied upon.

This is by no means an extraordinary recovery from so serious an accident, in our opinion, as will be inferred from other cases to be adduced.

CASE 2.—On the same day when the patient Riley came under my charge, I was requested by Drs. SCOTT and BARKER to see a similar case. The patient in question had just arrived in a carriage at his residence, which he had left six hours previously in a buggy on a little trip across the river. In correcting his young horse, it gave him a violent kick against the knee, causing laceration, hæmorrhage and intense pain. A medical man had

promptly used compression to control the bleeding. When we arrived at the patient's, we found him already undressed and in bed. Although the accident was but of recent occurrence, the patient was greatly excited, feverish, and complained of so much pain that he was with difficulty prevailed upon to be handled. Being placed on the table and the extremity firmly extended, a contused wound as large as a silver twenty-five cent piece was observed somewhat inside and below the left patella, and the knee-joint filled and distended by coagulated blood. The wound was immediately re-opened, the blood removed from the articular cavity, and the limb secured in a similar manner as in the previous case. I saw the gentleman again on the 12th of April, when I substituted an iron splint in the place of the leather one. On this occasion it was observed that the joint had again become distended; the wound was, however, so completely closed that I preferred paracentesis to its being re-opened, and withdrew three ounces of synovia mixed with blood. A few days after, the same operation had to be repeated for the same purpose. Rest, the extended position, the immobilization of the joint and water dressings, with subsequent compression, accomplished almost perfect recovery, for the patient in a good degree preserved the mobility of his joint. On the 26th of April, that is 16 days after the accident, I applied the interrupted splint and permitted cautious locomotion with the aid of crutches. In the middle of May the patient resumed his business.

I am fully aware that this case is but in one respect, namely, in the nature of the accident, more aggravated than the former. Contusions are always and justly looked upon as of greater gravity than incised wounds, on account of the unavoidable concussion of the articulation.

In other respects the case was more favorable than the former. Though the patient was ten years older than Riley, he is of a fine and strong constitution, endowed with an excellent nutrition and surrounded by domestic circum-

stances in every respect favorable to recovery from so serious an accident.

CASE 3—happened some months ago in my private practice. A middle aged gentleman had received an incised angular wound in almost the same locality, but of the right knee-joint. He was immediately attended by a surgeon, who tried to arrest the hæmorrhage by interrupted sutures. I saw the case in consultation with Prof. M. A. PALLER, perhaps some eight hours after the accident. We found the limb flexed and the joint largely distended by blood, which, having firmly coagulated, had displaced the patella from the inter-condyloid space to the external condyle of the femur, and turned it on its axis at an angle of 90 degrees. Chloroform being administered, the sutures were removed, the wound re-opened, the blood evacuated, the joint carefully washed out, and again closed by silver wire. The limb was then immobilized and splinted as in the former cases. In 30 hours the dressings again had to be taken off on account of ensuing pain and suppuration. Daily injections and dressings with warm water were followed up for several weeks, at the end of which the wound closed and firmly cicatrized. During the whole treatment there was no constitutional disturbance and hence no medication. The mobility of the joint was but partially lost.

CASE 4.—In January, 1866, a healthy young man fell near a street car whilst in motion and was extensively lacerated at the outer part of the popliteal space, including the tendon of the biceps muscle and the peroneus nerve. From the depth of the wound and its direction towards the posterior wall of the capsular ligament, it was considered probable that the latter was implicated. The shock from the injury was too great to allow a careful examination without chloroform, and this was not deemed safe under the circumstances; hence the question remained undecided whether the wound extended into the knee-joint.

The ensuing suppuration was very copious for ten days or thereabout, when it suddenly diminished; the articula-

tion became at the same time painful and fluctuating, and with this complication rigor and violent fever ensued. For several days the patient was in imminent danger from pyæmia. This change could only be accounted for by assuming that the wound had entered the joint, that the discharge had become obstructed by granulations and thus set up pyo-arthritis. As soon as consent was obtained, the joint was freely opened along the patella and warm water injected, which could be forced through the lower wound only in small quantity. Henceforward recovery proceeded without further interruption, the mobility of the knee-joint, however, was irreparably lost by very firm interarticular adhesions and the peroneus muscles remained paralyzed.

CASE 5.—A lad, æt. 17, wounded his knee-joint by a sharp-pointed butcher's knife, inflicting a penetrating wound of about half an inch in length. Not realizing the danger of the injury, he continued at work for several days. Pain, swelling and intumescence of the joint, as well as very intense fever, made him bedridden. The attending physician placed the limb upon a double inclined rather rickety contrivance, resorted to poultices and such general means as the urgency of the case required. The symptoms, however, did not abate by this treatment; on the contrary, they grew continuously worse. On the sixteenth day I was called in consultation; the patient manifested all the symptoms of pyæmic fever, exclusive of icterus and emesis; the tongue was dry and furred, appetite entirely lost, and the patient emaciated to a skeleton, with decubitus over the sacrum; the knee-joint enormously distended, with matter discharging imperfectly through the small wound, which moderate discharge had, however, served to prevent the rupturing of the joint at new places.

The patient was at once put under chloroform, the knee-joint freely opened, and subsequently extended and placed in an iron splint; a water bed was next procured to relieve the decubitus and to insure the comfort of the patient. In a month the wound had healed, the joint ankylosed, and the patient was allowed to walk about on crutches.

In fine, I will refer you to the young German who was an inmate of the City Hospital in the beginning of our winter course. He suffered from an incised wound of the inner margin of the patella. There was but moderate supuration with slight œdema; the pus was of a mild character and mixed with synovia. He suffered but insignificant pain, and at no time from constitutional symptoms. His wound closed in three weeks, and he was discharged with almost perfect use of his joint.

The results attained in these cases, two of which have been under your observation, will satisfactorily demonstrate that the fears of these injuries entertained by our surgical ancestors, are, in a great measure, unfounded; not that we underestimate their importance, for penetrating wounds of joints are most unquestionably injuries of the gravest character, but the advancement of therapeutics has acquired full mastership over them. One of the most serious errors committed by former surgeons was to place a wounded joint in a flexed position on a cushion, which opens both the wound and the joint and invites the atmosphere to enter; the next error was the timidity in not removing the coagulated blood and accumulated matter from the precincts of the articular cavity. The last, and not least, error in not securing the rest and position of the wounded joint by immobilizing the same.

To these means modern surgery owes its success in the treatment of penetrating wounds, more particularly of the knee-joint. The earlier and more perfectly these measures are adopted the surer you may rely on the recovery of your patients. We cannot always obviate suppuration of the joint; but it seems to be limited to the adjoining parts of the wound and but rarely extends over the whole internal surface. If the suppuration should become very copious and vitiated; if burrowing takes place in different places, inaccessible to the knife; if a high degree of debility or pyæmia should threaten the life of your patient, then, and not till then, should you resort to amputation.

I have fortunately not often been placed under necessity to resort to this *ultima ratio chirurgorum* on account of penetrating wounds of joints, and almost exclusively in such cases that came rather late under my charge.

1116 PINE STREET.

*A SIMPLE, CHEAP AND EFFICIENT SUBSTITUTE FOR
THE STOMACH PUMP.*

By JOHN T. HODGEN, M.D., Professor of Anatomy, Saint Louis
Medical College.

About a year ago, I had a case of stricture of the œsophagus so narrow that my patient could not swallow even liquids. To sustain life I resorted to a small stomach tube, (a gum catheter, in fact), as a means of injecting liquid nourishment; to this I fixed the elastic tube of one of Davidson's syringes.

On one occasion the vessel containing the liquid happened to be higher than the patient's stomach and I observed while the syringe was not being used, that the liquid continued to flow into the stomach—the action being that of a syphon. I at once, to test the syphon, substituted a simple elastic tube for the syringe, and found the stomach could be as readily emptied as filled. Thus I conceived the idea of using a syphon instead of a stomach pump, and have used the same in a case of poisoning recently with the most complete success.

I attach four feet of India rubber tubing to a stomach tube, fill both with water by simply dipping it in the liquid end first, then compressing the elastic tube between the thumb and finger to keep the fluid from running out, introduce the stomach tube, lower the outer end of the elastic tube, and the contents of the stomach pour out as readily as if from an open vessel. When the fluid ceases to flow, I dip the outer end of the tube beneath the surface of water, elevate the vessel containing it, and the stomach is soon

filled; lower again the outer end of the tube and the stomach is emptied. This can, of course, be repeated as often as is necessary.

The advantages claimed for this simple contrivance are, that it may be almost always improvised, is of speedy and easy application, has no valves to become obstructed or deranged, and is less expensive than a stomach pump.

The same principle may be applied in injecting fluids into the bowels, as indeed it has been for injecting into the bladder, uterus and vagina.

ST. LOUIS, June 6, 1870.

UTERINE CATARRH.

By MONTROSE A. PALLAN, M.D., Professor of Gynæcology, St. Louis College of Physicians and Surgeons.

The advance in medical science is but the materialization of the crudities of our predecessors. The hypotheses of past observers, under the microscope and the chemico-pathology of present realists, assume such shape, that we are led to believe that ARISTOTLE was right when he promulgated the doctrine that much, if not all of what we know had been learned and forgotten, to be learned *de novo*. HIPPOCRATES, GALEN, AETIUS, STAHL, HOFFMANN, MORGAGNI, CHARLETON, REINARD, RAULIN, TIMMERMANN, and hosts of others understood uterine catarrh pretty much as we do, with this difference: they were synthesists, we are analysts. They looked upon effect and symptom as we observe conditions producing such, and some of us even now confound causation and sequence. Into such an error has fallen no less a distinguished man than TYLER SMITH, if we believe destructive tissue metamorphoses to be the factors of uterine catarrh, and if we define such to be a mucous or puro-mucous epithelial discharge coming from the uterus, or confined to the neck or cavities of that organ.

The "*conatus moriendi*" of HOFFMANN, the "simple lesion of function of the living body" of SYLVIVS OF LEBOE, the "effort of nature in favor of the patient for the complete destruction of morbid matter" of SYDENHAM, and the "lesion of innervation producing secondary organic lesions" of DUBOIS D'AMIENS, are nothing more than a supposition, or even a rationalistic doctrine generally applied to a totality of conditions which we now express by "aplasia," "cacoplasia," and "hyperplasia." Catarrh of the uterus is symptomatic of a perverted nutrition dependent upon structural changes, either analogous or heterologous, and as such it will be considered.

The bibliography of leucorrhœa, or more properly catarrh of the female genital circle, is most voluminous, and from that fact it is proposed simply to glance at it, as the causation, diagnosis, prognosis, and treatment are as varied as were the facilities for observation and the especial pathological views of the writers. The principal ones who wrote on this subject were, BLATIN¹ in 1801, Sir CHAS. CLARKE² in 1814, LATHAM³ in 1815, DUBOUCHET⁴ in 1825, JEWEL⁵ in 1830, TROUSSEAU and BONNET⁶ in 1832, DESPINES⁷ in 1836, TYLER SMITH⁸ in 1852, besides a number of monographs by GARDIEU, CAPURON, LAGNEAU, LISFRANC, RICORD, JOBERT, VELPEAU, MCCLINTOCK,

1. BLATIN, J. B.—Du catarrhe utérin, ou des fleurs blanches. Paris, 1801, 8vo.

2. CLARKE, C. M.—Observations on diseases of females, attended with discharges. London, 1814, 8vo.

3. LATHAM, J.—Observations on leucorrhœa. Med. Transact. of London, vol. v, 1815.

4. DUBOUCHET DE ROMANS.—Traité sur le catarrhe utérin. Paris, 1825, 8vo.

5. JEWEL, GEO.—Practical observations on leucorrhœa, fluor albus, or weakness. London, 1830, 8vo.

6. TROUSSEAU et BONNET.—Mémoire sur l'emploi du fer dans le traitement des douleurs de l'estomac chez les femmes. Archives gén. de médecine, 1832.

7. DESPINES, (MARC).—Récherches analytiques sur quelques points de l'histoire de la leucorrhée. Archives générales de médecine, 1836.

8. TYLER SMITH.—The pathology and treatment of leucorrhœa. Philadelphia, 1853; Medico-surgical Trans., 1852.

SIMPSON, WEST, COURTNEY and TILT, found either in their works, or scattered through the various contemporary journals.

Extracts might be given from some or even all, but would rather tend to confuse us than to practically elucidate such points as are deemed of importance. Catarrh of the uterus is found to be symptomatic of many, if not most, of its pathological conditions, and is frequently the only sign whereby attention is drawn to the malady. Versions, flexions, and procidentia rarely exist without such, in a greater or less degree, and tumors, benign and malign, seldom occur without some catarrhal complication. The anatomical relations of uterus-tissue with the vascular and nerve plexus must of necessity beget abnormal secretion* or excretion of the lining membrane, just as the lungs or the stomach or the bowels are affected, where like causes which interfere with the nutritive functions are necessarily precursors to certain histogeneses, with this difference, that the latter are more prone to beget ulceration in the secretion of pus than are the former. Ulceration proper of the uterine cervical tissue or its lining membrane is by far less frequent than is commonly supposed, from the reason that several strata of cells are there found, and the upper ones form a kind of protection to the deeper ones.

Clinical observation bears out this doctrine of VIRCHOW, as we very frequently encounter uterine catarrh without the least appearance of ulceration. The relation of pus, mucus, and epithelial cells is not even now so well established that shades of difference are such as to make it easy to determine the "transitional forms or intermediate stages." The distinction which it has been sought to establish between mucus and pus corpuscles, and for the discovery of which

* Secretion here is not to be understood as separation from the blood. but from the tissue itself, because, as VIRCHOW says, "the detachment of cells is effected sometimes by means of the fluid which transudes from the blood, sometimes by the continual growth of a succession of new cells beneath them," etc.—Vide M.S. note by VIRCHOW. *Cellular Pathology*. New York. Pp. 492-3.

prizes were proposed in the last century, really could not be found out, and the "tests" could never be otherwise than insufficient, inasmuch as the cells developed upon mucous membranes do not always possess a purely purulent, purely mucous, or purely epithelial character, but on the contrary, in a great majority of cases, a mixed condition exists.* Examinations, made from many cases of uterine catarrh dependent upon endo-cervicitis or endometritis, frequently complicated with more or less of follicular vaginitis about the fornix, have revealed nothing whereby it is possible to contravert these facts, and therefore the definition of the trouble as enunciated above is in accordance with the highest authorities. That catarrh of the uterus is found unconnected with tissue changes is not possible, and such usually beget those suspicious dynamic symptoms that physical exploration seldom, if ever, fails to recognize. The lesions productive of uterine catarrh which are most common are either primary or secondary. The primary are always inductive of vascular or nervous disorder, recognized by displacement of the organ, such as flexions, versions, and procidentiae. The secondary are symptomatic of causes most commonly dependent upon the neighboring and surrounding pelvic structures, as well as the presence of homologous neoplastic formations, and heteracite growths in the uterus itself, always developing nutritive derangements of the lining membrane.

It is a well established fact that proper functioning is the result of proper nutrition, and a coördination of all those conditions which go to make up any structure. If the position of the uterus be deranged, and the nervous and vascular supply going to its tissue is in excess or deficient, and structural change of some of its elementary parts ensue, defective functioning is the consequence.

As to what is the normal position of the uterus, anatomists do not seem to be in accord. From such data as are given by HYRTL, KOHLRAUSCH, BREISKY and AEBY, we are led

* VIRCHOW—*loc. cit.*, p. 495.

to believe that, in the healthy virgin, it lies nearly at right angles with the vagina, somewhat above the bladder, in an axis on a line from about two inches and a half below the umbilicus to the os coccygis, the cervix being less than three inches from the vulva, while the fundus is just forward in such a position in the pelvis as is represented by a line drawn from the last lumbar vertebra to the superior third of the pubic bone; this line would divide the bladder from above downwards, leaving but a third of that viscus anterior to it. The rectum, when it is in a non-distended condition, nowhere touches the uterus. Clinical observation accords with these statements, because the sound, introduced into the uterus when the woman is examined in the lateral semi-prone, or in the knee-elbow position, and the perineum elevated by a Sims speculum, enters almost at right angles to the vagina.

With the child-bearing woman these data vary somewhat, in accordance with those changes which necessarily ensue subsequently to a more or less complete involution of the uterus, as well as a greater or less tearing of the fourchette or rupture of the vaginal muscular structure. Yet, as a rule, they do not vary much where the labor has been healthy and no inflammatory processes have been developed, the width and depth of the pelvis always being duly considered. Deviations from these positions, while they may not always beget so much of difficulty or distress as to demand attention upon the part of the woman, or even to attract her notice, usually are indicators of such phenomena as beget a catarrhal discharge, whether of a leucorrhœal nature or a slight ropy, viscid, tenacious substance, removed (from the os externum of the uterus) with great difficulty by the physician himself. It is not possible for either of the above conditions of uterine discharge to exist without some structural change in the lining membrane, primarily of itself or dependent upon tissue metamorphoses of the uterus. Whenever the deviation of position produces that turgescence of the lining membrane,

which not only begets the muco-purulent discharge but which frequently is coincided with dysmenorrhœa, its rectification will bring about such proper functionings as to abate the catarrh. The cause being removed, the effect ceases. With the treatment of versions, flexions and procedentiæ as productive of the uterine catarrh, there is nothing here to be said, as the indications for such are well defined in the works of THOMAS, GRAILY HEWITT, COURTY and others. With those causes connected with heteroclitic growths or homologous neoplastic formations, such as cancer, fibroid tumors, polypi, etc., the limits of this paper equally preclude any extended remarks. Such cases, however, of uterine catarrh as frequently come under the care of most practitioners, depend upon changes in the uterus itself, either as the result of parturition, abortion, unhealthy menstruation, or defective functioning of the surrounding pelvic organs, as the liver, kidneys or spleen; and which are extremely difficult to cure in private practice, and only in well regulated hospitals, the discipline of which is rigid, can we hope to obtain those results so necessary to ensure a re-establishing of the patient's health. On this class of cases, as well as those in whom uterine catarrh is but an exponent of general mal-histogenesis, it is proposed to offer some few remarks. Those forms of passive hyperæmia where there is a permanent proliferation of the connective tissue, such as hypertrophy of the neck, either supra or infra-vaginal, or of the body, usually seen after defective involution, are frequently met with as the causes of a catarrh (hypersecretion), which is cured only when the normal conditions are again developed. How difficult to accomplish this may be well imagined, when we recollect that œdema of the body of the uterus may take place as the result of an interference of the return of the blood from the uterine to the hypogastric veins, because of the bending of some portions of the uterine walls upon themselves, anteriorly or posteriorly, from their increased size and weight. The surrounding structures, viz.: the

broad ligaments, the Fallopian tubes, and sometimes even the ovaries, become involved because of the engorgement of the bulb of the ovary and the pampiniform plexus, as the only channel for the flow of blood is by the spermatic vein. The intimate connection of these vessels with the hemorrhoidal plexus, and of these in turn with the portal circulation, demonstrate why the hepatic functioning should sometimes correlate with that of the uterus, and why diseased action of either develops such in the other. Sir JAMES Y. SIMPSON insisted upon certain vicarious conditions of menstruation sometimes being dependent upon deranged liver, and he only reiterated what HIPPOCRATES enunciated thousands of years ago.

When the uterus is not properly involved, besides the above mentioned conditions of extra-uterine complications, peri metritis, peri cystitis and pelvic peritonitis may have taken place to farther complicate these vascular derangements which have interfered with proper mucous nutrition.

[To be continued.]

*ON FRACTURES.**

By JOHN T. HODGEN, M.D., Professor of Anatomy, Saint Louis Medical College.

IV.

THE UNION OF FRACTURES.—The conditions of repair of fractures do not differ from those required for the healing of other parts :

- 1st. A right state of the part itself.
- 2d. A proper character of the nutritive fluid.
- 3d. A proper quantity of nutritive fluid.

Under the first head we include all that relates to the part itself, so far as the capacity for proper nourishment is concerned ; a capacity on the part of the elementary con-

* Continued from page 221.

stituents of bone, periosteum and medullary membrane to select from the blood those materials required for repair; capacity to accomplish those elaborate changes necessary to complete the fitness of such materials to enter into and form the normal ingredients of the tissue to be repaired, and a capacity to adjust those elaborated materials in the formation of the tissue.

The capabilities for accomplishing these changes on the part of bone are not more perfect than in other tissues, yet the reproductive power seems to be greater, so far as the *extent* of the breach to be healed is concerned. Here we find expressed, in the relation borne by one tissue to another in its capacity for cell multiplication that which we observe to be true of plants or animals as related one species to the other. Plants and animals highest in the scale of organization possess less power of multiplication; those lowest or least complete, so far as the differentiation of organs and tissues is concerned, have most power of reproduction.

Bones and tendons repair perfectly and heal extensive ruptures, while nerves and muscles are less capable of closing by proper muscular and nerve tissue the injuries which they may have sustained. Hence the surgeon may feel more confident of the complete restoration of a fractured bone to its normal structure and function than he could feel in regard to almost any other structure.

The practical interference of the surgeon to secure a right action on the part of fractured bone tissue is limited at present to mechanical interference, or non-interference, with the part injured. Thus I can conceive of fractures, the repair of which would be secured by rubbing the broken surfaces together or by other means stimulating the indolent structures to greater action, and thus securing a union, when in the absence of such aid the parts would have remained ununited.

2d. A proper character of nutritive fluid is evidently required for nutrition or repair of any structure, and the barrier to union in one suffering from cancer, or scurvy,

or syphilis, may be due to blood changes, the precise character of which we do not know. Yet that they exist is shown, not only by the uncertainty with which fractures are united in persons laboring under such a cachexia, but also by the phenomena presented by such diseases in other respects. It is the duty of the surgeon to correct such dyscrasia, so far as may be possible, by introducing into the blood the deficient elements, or, in other words, by curing the diseased condition of the nutritive fluids, that they may contain the required elements of bone repair.

3d. A proper quantity of nutritive fluid in the part clearly influences the reparative process. There may be too much blood, and this may so heighten the nutritive process as to carry it beyond the point of healthy reparation. Inflammation may run too high. This may be corrected by position, cold, blood-letting, purgation, bandaging, or by any means that will diminish the amount of blood in the part.

Or, there may be from excessive hæmorrhage, or from a previously existing anæmic condition of the part, or from position, or from injury to the blood vessels supplying the part, too little blood in the part. This condition may be remedied by good food, the absence of compressing dressings, by position, forcing the flow of blood to the part, by artificial warmth, by frictions, etc., etc., thus directing to the part more blood than would otherwise reach it; and thus may be secured a more early union than would otherwise occur.

The period at which sufficient firmness will be attained can now be known in any given case. The age of the patient, the part injured, and the character of the injury have much to do in determining the rapidity of repair. In young subjects, in healthy subjects, in small bones, in those centrally located, the repair is rapid. In old subjects, in large bones remotely situated, the repair will probably be slow, and the solidification due to calcareous deposit may not occur. Thus any surgeon is liable to have cases of

non-union though every precaution may be taken to secure union.

Most of the deformities resulting from fracture are due to changes in the relations of fragments after the retentive appliances have been removed. I have seen it thus in the practice of others, and have had it occur in my own practice. I call to mind three cases of angular deformity in the femur—one in the patient of another and two in my own practice—in all of which the deformity occurred after the apparatus had been removed. All were corrected by replacing the apparatus and the application of force in the proper direction. It is idle to say that the surgeon did not keep the patient confined long enough, when it is utterly impossible for any one to say how much time is required for perfect union. Thus surgeons are often censured when they have not in any way been at fault.

Patients should be carefully watched for several weeks after fractures are apparently firmly united, and after they are allowed to move about and use the injured part, so that the surgeon may early recognize and easily correct any deformity that may arise; for if the new material uniting the fragments is soft enough to bind and allow deformity, it is soft enough to allow straightening for the correction of deformity. And there is no point to which the attention of the young practitioner can be more profitably called than this; for there is no part of the treatment of fractures more likely to be neglected. In the management of cases of non-union and false joints, I propose to call the attention of the reader to a few general principles, to which his attention would not require to be directed at all if it were not for the fact that too many of our profession lose, in becoming doctors, their individuality, forget that they are reasoning creatures, and only try to recollect in the management of their cases *what the books say*. A fractured bone does not unite. Why? Because there is a fault in some of the conditions. It may be that the general health, bad at first, is worse from confinement; if this be the case,

improve the general health. If it has suffered from confinement, let the patient up, give him fresh air, give him exercise, give the fractured limb exercise; and when the general condition is improved sufficiently, give the limb a proper position and rest. One of the late governors of the State of Missouri had the humerus fractured; he was advanced in life, and the general health was depressed from over-work. One, two, three months passed; it did not unite, the patient being kept confined. Official business required him to be out; despairing of union, he determined to attend to business; he did so, and in three months more the bone was united. We may learn after sufficient time has elapsed for union that our patient is laboring under some constitutional disease that must be corrected before union will occur.

The drill, the seaton, wiring, resection, are each and all very well, but there are cases where neither one nor all will succeed, for the reason that the bone itself may not alone be at fault. A case illustrating a faulty power in the bone itself occurred in my practice some years since. A young man had a double fracture of the tibia—one simple, the other compound. The same retentive apparatus held both fractures; the same blood supplied both points of fracture; all the conditions of repair were the same, except that one was more liable to excessive action than the other, from the fact that it was compound. The compound fracture united, the simple one did not, and two drillings were resorted to before it united.

In non-union I would look well to the general condition of the patient, learn where the fault may lie, and correct it if possible. Delays are dangerous in deformity occurring after removal of retentive apparatus, but not so in cases of non-union.

[To be continued.]

Reviews and Bibliographical Notices.

THE PHYSIOLOGY OF MAN; Designed to represent the existing state of Physiological Science, as applied to the Functions of the Human Body. Secretion; Excretion; Ductless Glands; Nutrition; Animal Heat; Movements; Voice and Speech. By AUSTIN FLINT, Jr., M.D., Prof. of Physiology and Microscopy, Bellevue Hosp. Med. College, etc. New York: D. Appleton & Co., 1870. 8vo., pp. 526.

[For sale by the St. Louis Book and News Co.]

This publication is the third volume of Dr. FLINT's work upon physiology, of which the first appeared in 1866. The nervous system, generation and development yet remain to be treated of. This volume presents to us secretion, ductless glands, nutrition, animal heat, movements, and voice and speech.

A statement of the physiological science of to-day, including those facts and principles that have been generally accepted and a discussion of the points still unsettled, cannot be given in a small compass, and the medical student, however he may prepare himself with shorter works, must at last unavoidably cope with books approaching in size this still increasing one of Dr. FLINT; and even the practitioner, who desires not to fall behind, cannot perhaps do better than to occasionally read through some of these voluminous publications instead of trusting to his own skimming of the medical periodicals. The class of readers for whom this work is best fitted is, it seems to us, the advanced medical student, after lecture season is over, as it is too extensive for the student to follow the lectures with it, and its tendency to the diffuseness and repetitions of medical lectures is somewhat out of place in a work intended for the practitioner.

Within the range of the present volume the author takes the most pride in the result of his labors establishing the theory of the excretory function of the liver, by which cholesterine is eliminated from the system, being discharged in the form of stercorine. These views he first published in the *American Journal of the Medical Sciences* in 1862, and in 1869 they were favorably reported upon in the French Academy of Sciences.

One of the distinctions between the secretions and the excretions is that, while the former, having been elaborated within the system and applied to a wide variety of purposes, from the lubricating of joints to the supplying of refractive media in the eye, and the most vitally important transformations of food, are finally, with a few exceptions, taken up again in some form by the blood,—the latter seem to be separated and collected for the purpose of being discharged from the body. In 1848 the sugar-making function of the liver as a ductless gland was announced by BERNARD. The office of the bile, the material that the liver discharges by the duct, after having been the subject of medical observation for ages, has also recently had much light thrown upon it. On account of the conclusively shown and indispensable action of the bile in intestinal digestion, and its not being discovered in the fœtus, we might hastily rank it as a secretion. Dr. FLINT has proved that it is both a secretion and an excretion, one of its many components being separated and discharged from the body like urea. To this elimination of cholesterine he attaches a great deal of importance, although the amount discharged daily is small. It is estimated that the amount of bile discharged daily from the liver of an adult weighing 140 lbs. is nearly 17,000 grains, or about 2 1-2 lbs., and of this only 10 1-2 grains are cholesterine, which becomes, as stercorine, a part of the excrement. Of the urea, with which it is classed as a deleterious excretion, about 400 grains are discharged daily. As cholesterine originates in the brain and nervous system, with which its relations are not fully understood, and knowing how small amounts of some substances have powerful effects upon these parts, we cannot, from the quantity alone, disallow the importance of this excretion. Those who have read Dr. FLINT'S previously published paper will recollect his interesting observations of the diminution of cholesterine in the limbs of paralytics, and he gives some reason to suppose that, in cases of disorganization of the liver, just as we have uræmia from accumulation of urea, we may have an accumulation of cholesterine, to which the name cholesteræmia may be applied,

We should not feel justified in detaining the reader by the enumeration of these facts if they did not have a bearing upon matters that at present are engaging the attention of the profession. The physician is often called upon to remedy a morbid state characterized, among other symptoms, by irritability of

temper, a certain degree of mental incapacity, muddiness of the complexion, and highly colored urine. To this state the term "bilious" has been applied, and it has been treated extensively with mercurials, notably with blue pills, and, observation had hitherto agreed, to the very common relief of the symptoms, the theory being that the relief was obtained through a freer flow of bile induced by the mercurial.

It is not necessary to our purpose to cite other related morbid conditions in which mercurials given, no matter on what theory, have been observed to give relief. Now, some recent experiments, carefully made in England, have seemed to show that mercurials given, not to sick men but to healthy dogs, do not increase the flow of bile; and however illogical it may appear, one would judge from the medical periodicals that a revulsion against the judicious use of mercurials had resulted from these experiments. Without discussing the point whether the physician is justified in refusing relief to his patient, even if his own theory of the method of the relief has been proved to be false, we wish merely to suggest that, adopting Dr. FLINT's view that the nervous and mental symptoms of the "bilious" condition depended upon an excess of cholesterine, that relief from those symptoms would follow from the elimination of the cholesterine, which may possibly be accomplished by means of mercurials, while the other components of the bile may be even diminished, so that it could be said that the flow of the bile, as a whole, had been lessened by the administration of the mercurials.

The investigator, then, should analyze the *fæces* for evidence of a greater discharge of cholesterine, looking for a larger amount of stercorine, unless the presence of the mercurial had occasioned some transformation of the excretion, and these investigations, however difficult and repulsive, would have the advantage of being applicable to a human patient.

Time permits us only to say further that new light upon the mechanism of glycogenesis can be found in this volume.

The publishers' making up of the book does not fall short of their usual attractive elegance.

C. E. B.

THE CELL DOCTRINE: ITS HISTORY AND PRESENT STATE. For the Use of Students, etc. By JAMES TYSON, M.D.,
Lecturer on Microscopy in the University of Pennsylvania, etc., etc.
Philadelphia: Lindsay & Blakiston, 1870. 12mo., pp. 150. Price \$2.00.

[For sale by Keith & Woods, Booksellers, St. Louis.]

Dr. TYSON has undertaken the laborious and, we hope, not thankless task of writing a history of the cell doctrine, and has performed it creditably. From the time when the microscope first revealed details of anatomical structure beyond the power of the unaided eye to discern, down to the present days of protoplasm and germinal matter, he traced the more important phases in the gradual development of our present views, and in the little volume before us has given a succinct and readable account of them. BEALE'S views are illustrated by a colored plate, the theories of some other histologists by woodcuts after SCHLEIDEN, SCHWANN, BENNETT, and VIRCHOW. Appended to the work, we find a "Bibliography"* extending over more than thirty pages, for the collection of which the author deserves especial thanks, as it will prove of the greatest service to his readers.

Dr. TYSON'S own views correspond in all essential points with Dr. BEALE'S. He seems to differ only in that he describes protoplasm or germinal matter as not always "structureless," but sometimes granular, and very properly objects to calling formed material "dead." He digresses a little from the avowed aim of his work in entering into speculations on "vital force,"—a subject to which he alludes, when discussing the previous and present theories of others, only in the case of HUXLEY. These speculations, we think, had better been omitted, because not necessarily pertaining to the subject of the book, but necessarily unsatisfactory and inconclusive. The author follows BEALE in this direction also, acknowledging that "vitality" is a force *sui generis*.

G. B.

* The proof reading of this part of the book, as well as of the foot note references throughout, has not been thorough. We would suggest especially that the brief expression of some other author's estimate of one of REMAK'S memoirs, which has here inadvertently been embodied in the title, be left out in a future edition. In the rendering of some of the German technical terms, the author has not always been fortunate; he translates „*ein-schnüren*," by "to cord in," whereas it is perfectly natural and *literal* to express it by "to constrict," even though this rendering happens not to be laid down in GRIBB'S Dictionary.

REPORTS ON THE PROGRESS OF PRACTICAL AND SCIENTIFIC MEDICINE, in Different Parts of the World. For the year ending June 1. 1869. Edited by HORACE DOBELL, M.D., Senior Physician to the R. Hosp. for Dis. of the Chest, etc. London: Longmans, Green, Reader & Dyer, 1870. 8vo., pp. xvi, 645.

The daily increasing extent of the domain of medicine, its subdivision into special territories, and the growing tendency of a special set of workers cultivating a special field exclusively; moreover, the rapid accumulation of facts which cannot at once, or with the speed required and desirable, be brought under general laws,—of knowledge of a kind which cannot readily be condensed into simple idea or brief expression;—these circumstances make it impossible for any one to follow the literature and labors of the present in its details, and create the growing need of “Retrospects,” “Reports,” “Abstracts,” etc., to the number of which Dr. DOBELL, in the annual entitled as above, adds a new and promising contribution.

This kind of literature is acquiring more importance every year. Quite a number of these eclectic summarizing, condensing periodicals exist, each of which offers its peculiar advantages and its peculiar defects. Completeness is attempted by few, the old *Cannstatt's Jahresbericht*, now in the able editorial hands of VIRCHOW, GURLT and HIRSCH, bearing off the palm in this respect. French enterprises of the kind also have a degree of success in this respect, though their completeness is such as Frenchmen understand it, and as M. WURTZ illustrates, when he begins his *history* of chemical theory with the dictum: “Chemistry is a French science.” In the English language there is as yet no periodical that makes an effort in this direction, save, perhaps, the comparatively small biennial Retrospect of the Sydenham Society. The others are purely eclectic, selecting and reprinting or extracting from the current periodical literature, and without affording any real or direct insight into the progress of the science. In this sense Dr. DOBELL makes a new move: he collates and obtains from “numerous distinguished coadjutors” in different parts of the world real reports—digests of the past year’s work: “The design of the work is to bring together in the English language original and independent reports from all parts of the world, written by distinguished men resident in the countries which they represent.” Strangely enough the

editor seems to retain the geographical classification in the arrangement of the papers, not from necessity, but from choice; e. g., a report on laryngoscopy, written in New York, but containing not a word of reference to anything done in the science by Americans, is nevertheless to be found under the heading "America." The resulting want of uniformity, and the arrangement of papers according to the alphabetical order of their headings (a good reason for which we utterly fail to imagine) is summed up in a table of contents which will not fail to call forth a smile: "Africa—America—Biarritz—China—Cider Colic—Climate—Consumption, etc.—Cretinism of the Cotswold Hills—Denmark and Sweden—Experiments—Falkland Islands—Fistula and Tuberculosis—Food, Heat, Motion—France—Germany—Hospitals—Iceland—India—Italy—Java and Madeira—Leprosy—Mechanical Appliances, Instruments and Inventions—Newfoundland—New Zealand—Paraguay—Portugal—Prince Edward's Island—Riviera and Algeria—Scarborough—Sulphocarbolates—United Kingdom of Great Britain and Ireland;"—there is something ludicrous in this table, and it misleads by concealing the valuable nature of the different papers. These are of a very mixed character; some are original articles on special subjects, and as such entirely foreign to the object of the work; some are reports of limited branches of science, or reviews of the investigations of special questions; and some, finally, are, what the title page promised, "reports on the progress of medicine in different parts of the world." Such are the articles entitled "*France*," by Prof. VILLEMIN; "*Germany*," by Dr. JULIUS ALTHAUS, and "*United Kingdom of Great Britain and Ireland*," by several compilers. Especial mention is due to the first named, by Prof. VILLEMIN, for its smoothness and thorough digestion. Among the original contributions the following deserve mention: *On Change of Climate in the Treatment of Chronic Diseases*, by T. M. MADDEN, M.D., etc.; *On the Climatology of Consumption, with special reference to Minnesota*, by BREWER MATTOCKS, M.D., St. Paul; and the papers on the echinococcus disease in Iceland, by Dr. HJALTELIN. Of the special reports we mention that on *Mechanical Appliances, Instruments and Inventions*, by Mr. HEATHER BIGG.

The editor offers very good explanations and excuses for shortcomings in this first year's issue, and promises they shall not

appear in the subsequent volumes. We trust the arrangement may also be amended, and original articles excluded. If the work be confined, in future, to the apparent and declared design of the editor, DOBELL's Reports will take rank as the first in the English language.

G. B.

ANATOMY, DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S., F.R.C.S., Lecturer on Anatomy at St. George's Hospital Medical School. With an Introduction on General Anatomy and Development, by T. HOLMES, M.A., Surgeon to St. George's Hospital, etc. A new American, from the 5th and enlarged English edition. With 462 engravings on wood. Philadelphia: Henry C. Lea, 1870. Svo., pp. 876, Price, cloth \$6, leather \$7.

[For sale by the St. Louis Book and News Co.]

A text-book on anatomy, to properly meet the requirements of the present day, must present to the student more than a mere descriptive detail of its grosser parts; it must succinctly enter into the advanced established principles of general anatomy and histology. Histology is an essential and indispensable element of a good anatomy, and descriptive anatomy is but the *via natura* to the study of the tissues. The student is obliged to pay as close and assiduous attention to histology as he has always paid to descriptive anatomy. The tendency of the age is analytical, the division of the complex into the simple, to study changes in disease in the single cell as well as the entire part or organ. So great and palpable is the advantage of the knowledge of histology, by enabling us to reason more clearly and correctly concerning disease, that he who desires to treat disease understandingly and not purely empirically, will aim to be a good microscopist. And it is gratifying to find that the importance of the study of histology is daily growing in the minds of the profession.

In looking over this new edition of GRAY's Anatomy we are therefore agreeably surprised to find "a very succinct . . . and sufficient introduction to the study of microscopic anatomy." This we deem an important addition, as it makes this really valuable text-book even more desirable. It embraces all of general histology, the structure of the integument, and a sketch of the principle of construction of the secreting glands and membranes. Forty-six pages, with forty-eight wood-cuts, are devoted

to it; and it is, in general, fairly up to date. The author (Mr. HOLMES) promptly availed himself of STRICKER'S *Handb. d. Lehre v. d. Geweben*, of which, unfortunately—as is easily detected in his pages—only the first part had been issued at the time he wrote this chapter.

Besides this we note a new and additional chapter on Embryonic Development, by the same author. Also a general improvement in the arrangement of the contained matter, and some excellent engravings added to the chapters on Arteries, Nerves, and Regional Anatomy.

GRAY'S Anatomy is a book of many excellencies and but few faults. It is idle to enter into a comparison with other anatomical text-books; suffice it to say that we are confident that it will continue to meet with the ample favor which it deserves.

W. B. O.

THE PREVENTIVE OBSTACLE, OR CONJUGAL ONANISM:

The Dangers and Inconveniences to the Individual, to the Family, and to Society, of the Frauds in the Accomplishment of the Generative Functions. By L. F. E. BERGERET, Physician-in-Chief of the Arbois Hospital (Jura.) Translated from the third French edition by P. DEMARMON, M.D. New York: Turner & Mignard, 1870. 12mo., pp. 182.

It is only with the march of civilization, or, more properly speaking, with the crowding of people together, that we find the conditions existing which bring about a knowledge of such deplorable facts as have called forth this interesting little book. There are many physicians living in the less densely populated districts, who have long been in practice, who have never seen an illustration of the preventive obstacle, and to whom such crimes are known only in the supposititious iniquities of Sodom and Gomorrah. In those cities and towns where humanitarianism develops itself in magnificent eleemosynary institutions, where luxury and wealth seek superb surroundings, where women neglect the household duties for their "rights," where home is an abstraction, and show the object of life, conjugal onanism thrives in exotic rankness. Europe has poured into the lap of America (a most thankful recipient) all of her virtues as well as her crimes, and whatever comes from over the sea takes root, prospers, grows, and never dies.

Those of 'us whose duties are 'midst the crowded cities, with a population as various as the tongues of the earth, know full well that the striving not to have children is almost as great as was the contrary after the Divine command was given to the children of Israel to go forth and multiply. Either from a desire to shield criminal intercourse, or on the part of the poor to be rid of the expense of rearing children, or by the rich to be rid of the trouble of so doing, child-bearing by females of the present age is shirked as an abomination, more honored in the breach than the observance, never taking into consideration that generative frauds, either direct or indirect, are incipient murders, consequently morally wrong, and *ex necessitate* entailing physical sufferings which our author divides in the First Part into "*Local Accidents in the Woman*;" "*Local Accidents in the Man*;" "*General Accidents common to both Sexes*;" which he forcibly illustrates by numerous well described cases. In the Second Part of the book M. BERGERET enters into the morality as well as the philosophy of conjugal relationship, and speaks of the "*Dangers and Inconveniences of Frauds to the Family*." In the Third Part of the "*Dangers and Inconveniences of Frauds to Society*," dwelling on—I. "*Demoralization*," and II. "*Arrest of the Increase of Population*." The conclusion which sums up the result as to the actuality of the crime to society, regrets that the religious training of Catholicism particularly, and all religion generally, is losing its sway, and this check upon crime is fast giving way to the inroads of fashion and immorality. It further discusses the philosophy of health, as regards celibacy and marriage, with their kindred ramifications.

There is a Report appended, which was presented to the Medical Society of Strasburg, upon this book of M. BERGERET, by M. TOURDES, Professor to the Medical Faculty of Strasburg.

This book of M. BERGERET is well timed, and its careful perusal by medical men, more particularly those who practice gynecology, will demonstrate important data, and teach them how to develop certain facts which would never come to light otherwise.

M. A. P.

THE PHYSIOLOGY AND PATHOLOGY OF THE SYMPATHETIC OR GANGLIONIC NERVOUS SYSTEM. By ROBERT T. EDES, M.D. [Transactions New York Academy of Medicine, Vol. III, Part VIII.] New York: William Wood & Co., 1869. 8vo., pp. 152.

To this laborious and scholarly work the O'Reilly prize was awarded by the New York Academy of Medicine, May 5th, 1869. The more recent scientific publications in English, French and German appear to have been thoroughly searched, and all the information bearing upon the subject carefully sifted and recorded. The compiler's task is at best onerous, but he has a much higher and more difficult one who is obliged in addition to attempt to find behind apparently discordant observations the hitherto unrecognized principle that will render them harmonious, and perhaps to reject statements made by high authorities, while in other cases he must struggle fruitlessly with problems for whose solution sufficient data have not yet been brought together: this has been the character of the labor which Dr. EDES has performed so satisfactorily that it has gained him great credit. The minute anatomy of the sympathetic is not very easy to demonstrate. The question of processes from the cells that characterize the ganglia has been differently answered by good observers, and, while the origin of the sympathetic fibres in the cerebro-spinal axis is proved, there is great doubt about the primary centre of the sympathetic motor fibres. After we have collected all that has been learned by direct observation with the microscope, and all that has been arrived at by physiological, pathological and experimental investigations, we are baffled to a great extent in connecting functions with anatomy.

All these methods of study Dr. EDES applies to

"1st. Connection of sympathetic with movements of iris, eye, and, for convenience, a few smooth muscles connected with the skin.

"2nd. Influence of sympathetic on vascular system, and secondarily, on blood nutrition, and secretion.

"3rd. Influence of sympathetic on thoracic abdominal and pelvic viscera, except the vascular system."

We shall content ourselves at this time with giving to our readers these indications of what they can find in the book and its great merit. It is not easy reading, owing to the intricacy of the subject, but they will be repaid in information for time intelligently spent upon it.

C. E. B.

A PRACTICAL TREATISE ON THE DIAGNOSIS, PATHOLOGY, AND TREATMENT OF DISEASES OF THE HEART. By AUSTIN FLINT, M.D., Professor of the Principles and Practice of Medicine, and of Clinical Medicine in the Bellevue Hospital Medical College, etc. Second edition, thoroughly revised and enlarged. 8vo., pp. 550. Philadelphia: Henry C. Lea, 1870. Price \$4.50.

[For sale by Keith & Woods, Booksellers, St. Louis.]

The first edition of this work was welcomed in this country, where Dr. FLINT was favorably known as observer, teacher and practitioner, as might have been expected. In Europe it was taken upon its merits and readily found a place beside the best works written upon the subjects of which it treats. The new edition is the former shorn of some unimportant matter, partly re-written, and greatly enriched by whatever of practical utility could be deducted from a careful analysis of about four hundred and fifty cases, studied and recorded by the author during the last ten years. Dr. FLINT has succeeded admirably in setting forth as clearly as can well be done by the aid of words alone, the signs and symptoms of the various diseases of the heart, and their exact diagnostic value.

The beginner will be thankful for his minuteness in detail, while those more advanced will hardly be wearied by it. With those who properly appreciate the importance of thoroughly understanding the best means of rightly diagnosing and treating diseases of the heart, this book will have ready sale. The print is excellent.

J. M. L.

THE INDIGESTIONS; or Diseases of the Digestive Organs functionally treated. By THOMAS KING CHAMBERS, Honorary Physician to H. R. H. the Prince of Wales; Senior Consulting Physician and Lecturer on the Practice of Medicine at St. Mary's Hospital; etc., etc. Third American edition revised. Philadelphia: Henry C. Lea, 1870. 8vo., pp. 383. Price \$

[For sale by Keith & Woods, Booksellers, St. Louis.]

In his preface to this edition, the author says: "A third edition is not yet required in England, so I send the MS. for publication to America. I have faith in the kindly feeling with which it will be received there." And well he may; for the respect paid to Dr. CHAMBERS's views, and the real pleasure with which his

works are read in this country, are the most enviable reward of faithful labor an author can desire. The rapid exhaustion of the previous reprint in America is a cheering sign of the studious habits of our profession, and we are accordingly rewarded by having an original edition of our own, which is in advance of the English issue. For it is thoroughly worked over, much of it re-arranged and re-written, with an increase of 95 cases, and, altogether, of over 60 pages.* The most noticeable change is the addition of an entire chapter of 46 pages (Ch. II.), entitled "Indigestions, Acute and Chronic." Most of the material embodied in the third chapter of the former issue: "Habits of Social Life leading to Indigestion," has been transferred to a new chapter (X.) in this, on the "Causes of Indigestion."

The improvements in this third edition are sufficient to recommend the book even to the possessors of the second. G. B.

* Compare review of second Amer. edition, 1868, in this Journal, N. S., Vol. V, p. 415, Sept., 1868.

Extracts from Current Medical Literature.

OBSTETRICS—DISEASES OF WOMEN.

1. *A Mode of Applying the Short Midwifery-Forceps, productive of less pain to, and disturbance of, the patient, than that usually adopted.* By JAMES BRAITHWAITE, M.D., Leeds.

[*British Medical Journal*, Dec. 25, 1869.]

There is a large class of cases, especially in primiparæ, in which, perhaps from some slight disproportion between the head of the child and the pelvis of the mother, from constitutional debility, or from accidental rupture of the membranes early in the case, the labor is exceedingly tedious, and the recovery afterwards correspondingly tardy and imperfect.

Now although, as an obstetric instrument, the forceps is everything that can be desired in cases of a severe type, yet for those in question it is hardly suitable. The instrument is seldom at hand when wanted, and has to be sent for, to the great alarm of the patient and her friends. It is, moreover, necessary, before it can be used, to move the patient to the edge of the bed, to empty the bladder, and to make other preparations, which arouse her fears still more; and they are not lessened if she hear the metallic click of the blades.

. . . If, although really an instrument of two blades, we can have one possessing the portability of the vectis, so that, when going into the country or to a place some distance from home, this blade can be slipped into the breast-pocket, and there remain out of sight, and without the chance of the noise which would arise if two blades were so placed; if we can apply this blade almost without the knowledge of the patient, without causing her the least pain during its introduction, and without disturbing her position in the bed, unless too near its foot to allow of the proper movements of the handles during extraction,—it appears to me that we shall have all we want. There would be, moreover, this additional advantage, that one instrument would do for all cases, whether those in which a little judicious assistance will be of great advantage to the patient, although not *absolutely* necessary to the termination of the case; or serious cases of impaction . . .

Acting upon the hint conveyed by SHERATON's steel fillet, I have had an instrument constructed, consisting, as you see, of an ordinary pair of short forceps-blades, accurately adapted to one another—the convexity of

one to the concavity of the other, and connected firmly together in this position by two India-rubber bands, which are easily removable by rolling off, when it is wished to separate the blades. This is the position in which they are intended to be maintained when not in use, and during introduction. When not in actual use, the blades are protected by a small leather case. They are used in the following way. The external parts being separated by the first two fingers of the left hand, the blade is to be slipped in between them (and it is sufficiently narrow for the purpose). Keeping the point in close contact with the head, it is to be passed directly into the hollow of the sacrum, precisely as the vectis is introduced. In the ordinary position of the foetal head, the point of the blade will now be over the left eye, but above it about two inches. The blades must now be separated, and glided one downwards and the other upwards, until, as regards the pelvis of the mother, a line running from the concavity of one blade to the concavity of the other would be exactly at right angles to its antero-posterior diameter. With exercising a little pressure, they will now lock, and the case may be proceeded with. In the first or common position of the foetal head, the upper blade will be on the right temporal ridge, just within the line of the hairy scalp; and the lower blade just behind the left ear. In the second position, this will be reversed, and the lower blade will be just behind the right ear. The occipito-posterior position's nature will have almost invariably converted into occipito-anterior, by the time the head is sufficiently low down in the pelvis for the application of the short forceps. To those who may object to the parts of the foetal head grasped in this way of using the forceps, I may reply as follows:

1. I have not recommended its use in this position, except in the less severe class of cases. At the same time, I may say that I have applied it at least forty times in this position, and that some of these cases were very difficult; and only in one case was there any bad result for which I could blame the forceps—the child dying in convulsions soon after birth. This might have resulted simply from the severe labor.

2. The long forceps seizes the child in almost exactly the same position, being applied at right angles to the pelvis of the mother, without reference to the position of the child's head; and, when the head has been brought down by them into the cavity of the pelvis, it is not thought necessary to alter its position on the head, or to substitute the short forceps applied over the ears.

3. Compression is effected by elongating the head exactly in the direction in which nature does it. A child's head is not compressed laterally in labor; it is elongated, the anterior part of the skull being flattened.

4. Compression is not effected in a dangerous direction. It is not along the same plane as it would be if from the forehead to the occiput. The line of pressure extends diagonally across the head, and from the top to the base. The lower blade lifts, as it were, the occiput into its hollow: whilst the upper slightly compresses the vertex. At the same time, the hold of the instrument being to a great extent a side to side one, we have

almost all the advantages of the latter mode of grasp, in depressing the vertex, and rotating the head under the pubic arch when the time for that movement occurs.

I need hardly say that there is nothing to prevent the blades being passed separately in the usual manner, if thought desirable from the degree of impaction being considerable, and the difficulty in extraction expected to be great.

Before concluding, I will enumerate the advantages which are offered by the use of this form of forceps; and, in so doing, I leave the subject to your judgment.

1. It is light, portable, and can be carried in the breast-pocket, where it is invisible, and where it cannot be lost in travelling.

2. Its application is much more rapid than that of the ordinary short forceps; indeed, I think a minute and a half or two minutes is generally sufficient.

3. It causes so little annoyance to the patient, that its introduction and application to the head may be said to be painless. Now, this certainly cannot be said of the ordinary way in all cases; for, when the head is distant an inch and a half from the perinæum, the blades have to press considerably upon the external parts of the mother to get the points round the convexity of the head.

4. It is much safer to the child than the use of ergot, which should be confined to those cases in which the sole cause of delayed delivery is sluggish pains.

5. It is unnecessary to disturb the position of the patient, unless she be too near the foot of the bed. It is also needless to empty the bladder, unless we can feel it sensibly distended with urine.

6. Compression is effected naturally, the elongation of the head being assisted. I may here remark that, unless a certain amount of compression be exercised by forceps, the traction-power is confined entirely to the tips of the blades, and injury is likely to result.

7. A peculiarly distressing accident sometimes results from the use of the short forceps across the ears; viz., paralysis of the portio dura. There is no risk of this when it is applied in the way of which we are speaking.

8. The same instrument may be applied in the ordinary way in severe cases of impaction, if the operator think it desirable.

Of course, any ordinary pair of forceps can be applied in this way, except that each blade must be introduced separately.

The best way of avoiding rupture of the perinæum is, as the head presses on the external parts, to unlock the blades, and to let the handles cross one another as much as they will. The blades will now lie closely adapted to the head, and will not stretch the perinæum at all. At the same time, they can be reapplied instantly, if necessary. This is better than entirely withdrawing them, which should only be done when the head is pressing well upon the perinæum and stretching it; the pains being sufficiently strong to render it evident that no further artificial aid is required.

2. *The Treatment of Prolapse of the Umbilical Cord.* By
Dr. MASSMANN.

[*Practitioner*, Nov., 1869; from *Praktische Arzt*, Aug., 1869.]

Dr. MASSMANN has collected the histories of no less than four hundred cases, of which upwards of forty came under his own observation, either in private practice or as assistant physician to the hospital at Breslau. It appears that, from the statistics of SCANZONI, the proportion of cases in which prolapse of the umbilical cord occurs is as 1 to 254 births. The author, however, gives a much higher figure, estimating it at 1 to 123. It is absolutely most frequent in head presentations, but only because these are far more common than breech or cross presentations: the frequency of prolapse is *relatively* very much greater in the latter. It is especially liable to occur whenever the lower segment of the uterus is not fully occupied by the presenting portion of the child. Hence it is met with in cases where the head is high in the pelvis, or is directed more or less to one side. It is not the pelvis, but that contraction of the lower segment of the uterus which occurs in normal delivery, that keeps the umbilical cord from prolapse. The statement made by FRIED and SCHMIDT, that a pelvis of great width predisposes to its occurrence, is incorrect, since it is precisely in these cases that the head rarely sinks into the pelvis. According to MICHAELIS and HILDEBRANDT, the chief circumstances favoring prolapse are irregularities in the position of the child or head, and all circumstances occasioning great dilatation of the uterus, as hydramnios, twins, &c.; but besides these may be mentioned low attachment of the placenta, great length of the cord, previous prolapse of a small portion, premature birth. The death of the child, which occurs in 54 per cent, of the cases, according to SCANZONI, and in 45 per cent, according to Dr. MASSMANN, is not the result of cooling of the cord, but of the pressure upon it preventing the passage of the current of the aerated blood from the placenta: the child consequently dies asphyxiated. The accident is most dangerous at the symphysis, on account of the pressure being immediate, severe, and persistent. The treatment of prolapse of the umbilical cord of course consists essentially in protecting or removing it from pressure as quickly as possible. The former indication is fulfilled by the replacement of the cord, the latter by speedy delivery. Formerly the latter mode was always adopted; the former was first recommended to be adopted as a general rule by MICHAELIS. Inasmuch as the replacement of the cord involves the introduction of the whole hand, it is necessary that the os should be sufficiently dilated. If this be not the case, and the liquor amnii have not escaped, we must wait, and endeavor by slightly altering the position of the head to bring about spontaneous reposition. Hohl's recommendation is, whilst the head is descending during a pain, to keep two fingers pressed against the loop of the cord. But if it be found that even with unruptured membranes the cord is exposed to dangerous pressure, HÜTER proposes that, providing the mouth of the uterus will admit the hand, to replace the cord, then to rup-

ture the membranes and place the head in position. Pursuing this plan in ten cases, the author was fortunate enough to deliver ten living children. In cases, however, where the waters have been discharged, and the cord is prolapsed into the vagina whilst the head is low, the forceps must be at once applied and delivery effected. If, however, the head be still high and movable on the brim of the pelvis, whilst the os is sufficiently dilated to admit the hand, replacement is indicated, the statistics here being that 73 children out of every 100 survive. If, on the contrary, the expectative treatment be adopted, and the attendant waits till the head is sufficiently low to admit of the application of the forceps, only 49 per cent. of the children are saved. When replacement of the cord is determined upon, it should be accomplished with the whole hand; the right being used when the loop is on the left side, and *vice versa*. Small loops may be pushed back with the tips of the four fingers, but larger ones cannot be replaced in this way. In such cases the author thinks it is most advisable to collect the whole loop into a mass, supported on the tips of the fingers and hollow of the hand. The hand is then to be slowly passed into the uterus, firmly pressing all the time on the head, and care must be taken to introduce the cord completely over and beyond the head. Before being withdrawn, the hand should be twisted about one-fourth of a circle, so as to extract it through the opposite side of the pelvis. The normal position of the head and the complete occlusion of the lower segment of the uterus are the only means of retaining the replaced cord. Hence the head should, if displaced, be put into the normal position, and the hand should be retained in the uterus till it is felt that the lower segment of the uterus has firmly contracted, and the occurrence of this may be hastened by friction. If an arm present, this must be replaced either by itself or simultaneously with the cord. If a foot and arm present, the foot must be brought down. When the replacement is effected, the case must be left to nature, cramping pains being removed with a dose or two of Dover's powder. Often after reposition of the cord the uterus relaxes, and labor is stopped for several hours; and this is usually without danger to the child. The mere want of pulse in the cord is not a proof of the death of the child, and should not lead to neglect of its replacement.

3. *Nursing by the Mother.* By M. E. DECAISNE.

[*Arch. gén. de médecine*, Feb. 1870, p. 243.]

M. DECAISNE communicated to the Paris Academy of Sciences some "reflections" on the subject of nursing, viz:

Pregnancy, lying-in and lactation ought to be considered as a chain of events which cannot be broken without danger to the mother as well as the infant.

A large number of facts prove that the mother who does not suckle her child is more exposed to peritonitis, metritis, abscesses

of different kinds, certain chronic diseases, cancer of the breast and uterus.

It has been observed—as I shall show in a work I am preparing—that chlorosis, anæmia, some affections of the stomach, and the state designated by the vague name of “a feeble constitution,” very far from being, for the physician, reasons for dissuading the mother from suckling her infant, should on the contrary, in most cases, make him regard lactation as a means of re-establishing the perfect equilibrium of the functions of the organism.

I wish it well understood, that I admit that certain women cannot suckle; but one ought to recommend nursing by the mother herself in all cases where the health of the woman is not necessarily jeopardized; and the cases are rare, even in the city, where the mother cannot fulfill this duty. One should not cease to repeat, that it is not indispensable for a woman to be very robust and in perfect health in order to nurse her infant, whereas it is necessary to be most exacting as to the conditions a hired nurse should fulfill.

I think these considerations, which, I admit, have not all the merit of novelty, ought to be taken into account in the grave questions of the mortality and of the alimentation of the newborn, which administrative regulations can perhaps never solve satisfactorily. But I believe that if this problem that presents itself to-day to the reflection of physicians and economists can be simplified, it will be only by a return to the study of the laws of nature which are never transgressed with impunity. G. B.

4. *Treatment of Menorrhagic Chlorosis.* By Prof. BÉHIER.

[*Bulletin gén. de thérapeutique*, Feb. 15, 1870.]

In a paper on the methods of using iron preparations, M. BÉHIER remarks that in chlorosis accompanied by profuse menstruation, iron, unless administered with certain precautions, will increase the hæmorrhage and, in thus robbing the economy, become hurtful rather than useful.

In this case, he employs and recommends the following method. The iron should be given in the intervals between the menstrual periods; at that time it is useful, for it serves to manufacture blood globules, stimulates the digestive tube, and enlivens digestion. But as it favors hæmorrhage, it is necessary to suspend it three or four days before the menstrual period. When

the latter begins to appear, or even from the time the iron is omitted, he prescribes daily 6 Helvetius' pills, the formula of which is as follows, viz. :

Pulverized Alum	-	-	-	-	-	-	-	10 parts
Dragonsblood	-	-	-	-	-	-	-	5 parts
Rose Honey	-	-	-	-	-	-	-	5 parts
To be made into pills of about 3 grains [<i>2 décigrammes.</i>]								

Under the influence of this remedy, the menstruation will be less profuse, and as if slackened without being suspended.

This remedy also succeeds very well in women who have regularly, at the menstrual period, hæmorrhages caused by the presence of intra-uterine polyps or fibroids; these pills are easily employed and allow the patients to reach the menopause,—a time when the hæmorrhages cease and one sometimes observes the disappearance of the fibrous tumors. [? TR.]

For these pills of Helvetius may be substituted, or to them may often be added with advantage, opium to the amount of 1 to 3 grains (6—20 *centigr.*) in fractional doses of 1-6 grain (1 *centigr.*) an hour, or even more.

G. B.

5. *Treatment of Chronic Uterine Catarrh.* By W. S. PLAYFAIR, M.D., M.R.C.P., Assistant Obstetric Physician to King's College Hospital, &c.

[*British Medical Journal*, Dec. 11, 1869.]

... The plan which I have myself invariably employed is much more simple in its mode of application, and answers every purpose. I use several small probes, made of flexible metal, attached to a wooden handle; or fine probes of flexible whalebone. Round these I wrap a thin film of cotton-wool, which, by a little practice, can be so arranged as not materially to increase the bulk of the probe. Having ascertained by examination the position of the uterus as accurately as possible, I pass an ordinary speculum. The peculiar glairy and tenacious mucus, which is characteristic in these cases, will probably be seen issuing from the os; and, before making any alterative application to the more deeply seated parts, it is necessary that this should be wiped away. Were we to introduce our remedies without doing this, we would probably fail to touch the diseased mucous membrane, which is covered and protected by the abundant discharge. For this purpose, therefore, I first introduce one of the probes, bent as nearly as possible to the direction of the uterus, covered with cotton as described, and swab out the cavity of the cervix and uterus as completely as I can. A fresh probe, the cotton on which is

saturated with the fluid which we wish to use, is then introduced; and, on being gently moved about, our remedy is applied smoothly and evenly, but not in excess, to every part of the mucous membrane. As a rule, there is no difficulty experienced in passing the instrument. As I have already observed, it is one of the peculiarities of these cases, that the whole of the cervical canal is in an enlarged and patulous state. The consequence is, that our probes, which should be as little bulky as possible, enter without the least difficulty, and without the employment of any force or roughness, which is to be scrupulously avoided. It is, indeed, curious to observe how, as the case improves under treatment, the patulous state of the cervical canal diminishes, and more and more difficulty is experienced in passing the instrument; and I have learnt to look upon this as one of the most reliable signs of improvement.

Dr. THOMAS recommends the use of a tangle-tent before making any intrauterine applications. This I can not but consider as objectionable, not only as rendering the treatment much more complicated and difficult, but as being in itself likely to provoke considerable irritation; and I believe it to be unnecessary in the large majority of cases requiring intrauterine applications. Still it occasionally happens that there is a profuse muco-purulent discharge, without any external erosion, and without a patulous condition of the os. In such cases, it would be impossible to make any topical application without previously opening the cervix.

Various remedies have been used for the purpose—the same, indeed, as are applied to external erosions on the cervix; such as a strong solution of nitrate of silver, tincture of iodine, or even the acid nitrate of mercury, each of which has its advocates. The two former I have myself frequently employed; but for a considerable time I have used one application only, which has given me the best results, and which I believe to be infinitely superior to all others. This is carbolic acid, which I use nearly concentrated, just sufficient water being added to the pure crystalline acid as will keep it in a fluid state—*i. e.*, about 20 parts in 100. It would be difficult to exaggerate the good effects of this application in the treatment of uterine disease. When applied to superficial granular erosions on the cervix, it often heals them in a marvellously short space of time; one or two applications sometimes effecting a cure. In a recent paper by Dr. LLOYD ROBERTS of Manchester, published in the *Practitioner*, its value is dwelt upon; and I can fully corroborate what he says upon this point. It is also much used by my colleague Dr. PRIESTLEY. For application to the interior of the uterine cavity, it has some special advantages. NEUMANN of Vienna has pointed out that, when applied in a concentrated form, it causes the tissues to shrink and mummify, but that they do not swell; nor does it seem to produce an eschar, as do the stronger caustics, such as potassa fusa, acid nitrate of mercury, and even nitrate of silver. We can thus use it freely, without fear of inducing contraction of the cervical canal—a result which has occasionally followed the use of other agents. Nor does it give rise to pain. I have occasionally heard patients complain of a sense of discomfort for a time, which was probably due to the passage of the probe. As a matter of precaution, I always recom-

mend patients to remain in bed or on the sofa for the rest of the day on which it has been used. In obstinate cases, I use it once a week, applying it freely not only to the interior of the cervical and uterine cavity, but also over any superficial erosions that may exist. The latter always soon begin to heal and skin over; but the true uterine catarrh generally requires a somewhat protracted treatment. I can say, however, with regard to this plan, what COURTY also says with regard to his own favorite treatment of leaving a piece of solid nitrate of silver within the uterine cavity—that I have not yet met with a case of uterine leucorrhœa, even though of many years' standing, which has not either been entirely cured or very greatly ameliorated. Nor have I ever seen any bad consequences follow a plan which some may be inclined to consider hazardous. That it requires some caution in its application, I not only willingly admit, but even insist on. If forcible attempts be made to pass any instrument through the os uteri, especially if the operator is not accustomed to uterine manipulations, very unpleasant consequences are likely enough to follow. But, if due gentleness be used, and the cases be properly selected, I believe the treatment to be perfectly safe.

When the uterus itself, or the cervix, is enlarged and hypertrophied, which is very frequently the case when the disease is of old standing, much benefit is to be obtained from the use of pledgets of iodised cotton, placed next the cervix through the speculum, and maintained in position by another pledget of cotton soaked in glycerine. This I use, when necessary, in conjunction with carbolic acid; and in this way even considerable thickening and hypertrophy is rapidly absorbed. In one or two cases, in which there has been an excessive amount of granular erosion on the exterior of the cervix—the hypertrophied papillæ projecting in a fungous or cockscomb-like growth—I have derived much advantage, and considerably hastened the cure, by making a few superficial incisions before applying the carbolic acid. This is the plan advocated by HUGUIER in his *Lectures on Uterine Catarrh*, and approved by WEST; and, although seldom necessary, it does undoubtedly prove of occasional service. It acts by allowing the caustic to reach the deeper seated follicles, which might otherwise escape its influence.

MEDICAL PRACTICE AND THERAPEUTICS.

6. *Case of Acute Mania successfully treated with Hydrate of Chloral.* By Dr. CRAWFORD.

[*Amer. Journal of Insanity*, April, 1870; from *Med. Times and Gazette*.]

On December 2, 1869, I was requested to visit a Mrs. P., aged 56 years, the mother of a large family, who was said to be wrong in her mind, and after doing so found it to be only too true.

Part of the history of this person appears to be as follows:—About fourteen years ago she became insane, and after remaining at home for

several weeks became quite unmanageable, and had to be removed to a lunatic asylum, where she was an inmate for nine months, and having partially recovered was taken home, and soon got better, and continued well for nine years. At this time another attack came on equally as severe as the first, when she again had to be sent to the asylum, where she remained for about five months, and then got all right.

Upon these two occasions sleep was almost an impossibility, everything in the shape of medicines having been tried to produce that effect, but without any apparent advantage.

On the present occasion, at the time I was called, she had been ill for five weeks, and during that time I was told by her daughter, who had been with her in her previous attacks, had not slept five minutes at any one time, and that her symptoms now are exactly the same as they were in her former illnesses. Large doses of opium and morphia had been given her to induce sleep and quietness, but instead of these they only seemed to make her more talkative and restless, if worse could be. During the five weeks her appetite remained in a ravenous condition, eating at some times twice the quantity she could do in health. Owing to the constipating effects of the opium and morphia, she had to be frequently purged with other medicine, but all did not do her a particle of good.

After what had been done in the case, I considered it a good one for chloral, and determined to give it a trial.

I may state that, before giving the chloral, her pulse was 130 per minute, and the temperature of the body very high.

I gave her twenty-five grains in two ounces of water at bedtime for three consecutive nights, and its effects were quite marvellous. The first night she did not sleep much, but the talking was entirely stopped. The second night she slept for nearly nine hours perfectly sound and tranquil, and even during the following day she had several hours of refreshing sleep. The third night was equally as quiet, with as much sleep, and on the following day said she was quite better, and did not require any more of that medicine which made her so sleepy. Immediately after the first dose the pulse began to fall, until at the end of the third day it was down to 90, and during the same time the temperature gradually became natural. She did not complain of nausea, headache, or any other unpleasant feeling during the time she was taking it.

Since that time till now she has remained perfectly well, sleeping at night, taking her food, and attending to all the duties of the household as formerly.

7. *A Case of Hereditary Epilepsy Cured by Bromide of Potassium.* By HENRY K. STEELE, M.D., Dayton, Ohio.

[*Amer. Journal of the Med. Sciences*, April, 1870, p. 570.]

November 19, 1866, I was called to see Miss E., aged about 15, who was suffering for the first time from an epileptic paroxysm. She had

recovered from the attack when I reached the house. Her catamenial period had just commenced, and the flow was still on her. I prescribed a solution of bromide of potassium, ten grains three times daily, with directions not to omit it until I gave permission. On the 29th of May, 1867, almost six months afterwards, I was again called to see her. I learned that having presumed she was well, she had omitted the medicine for three weeks, and was now undergoing a second epileptic paroxysm.

I repeated the prescription, impressing upon her the importance of continuing it; which she has done to the present time, a period of two years and almost four months from the date of the last attack, without the omission of a single day, and without the recurrence of the paroxysm.

It has been suggested that after fifteen or sixteen months' exemption from the disease a cure might be considered effected, but I have not thought advisable to follow that suggestion, although emanating from so distinguished a source as Dr. BROWN-SÉQUARD; on the contrary, in May, 1869, after an uninterrupted continuance of the remedy for two years, I added five grains of the bromide of ammonium to each dose, believing that the system having adopted and appropriated as part of its natural sustenance the bromide of potassium, it might require a little more of the bromide as a counteracting tendency to the disease. She still continues the prescription, therefore, as increased last May.

The mother of this young lady, whom I saw frequently, was attacked with epilepsy about the same period of life her daughter was. The attacks were not controlled, but became gradually more frequent and violent; insanity followed, and she died in an insane asylum, the epilepsy continuing to the close.

8. Whooping Cough Treated by Chloral. By Dr. A. FERRAUD.

[*Boston Med. & Surg. Journ.*, March 17, 1870; from *Bull. gén. de thérap.*]

Dr. F. had three patients in one family with whooping cough, which he had treated unsuccessfully with various remedies. He then tried chloral, which he gave in syrup, in the proportion of 2 grammes to 150. In each spoonful of the mixture there were 25 centigrammes of chloral. The first three days two spoonfuls were prescribed for each evening, were not regularly given, and only the tolerance of the medicine was established. Then three spoonfuls were prescribed and were regularly given. Now there was an abrupt and favorable change. Instead of three or four attacks of coughing, with vomiting, in the course of each night, there was unbroken and refreshing sleep. In the morning, on awaking, there was an attack of the cough for a few days, which soon disappeared. Recovery was rapid.

9. Chloral in Asthmatic Bronchitis. By Dr. CASPAR MORRIS, Philadelphia.

[*Trans. Coll. Phys. Philad.*; in *Amer. Journ. Med. Sc.*, April, 1870, p. 402.]

Dr. CASPAR MORRIS said: I was recently in attendance upon a lady who suffers from frequently recurring attacks of bronchitis, with asthma.

The skin was hot, the frequency and difficulty of respiration very great, the râles loud and musical, and the secretion very profuse, so that the mucus could be poured from the cup in an abundant, ropy stream. My attention had been arrested by the account, recently published, of the hydrate of chloral, and as she had not been relieved by any remedy which I had previously tried, except to a slight degree by chloric ether, it occurred to me that the chloral might be of service. I ordered five grains in one fluidrachm of the syrup of lactucarium of Aubergier, to be repeated in two hours if required. The two doses afforded entire relief; and she has found great comfort since from a single dose taken at bedtime; a good night's rest being secured by it. I mention it as a valuable aid in the treatment of this intractable and distressing disease.

10. *The Climatic Treatment of Consumption.*

[*Practitioner*, Jan., 1870, p. 45.]

The *Practitioner* concludes a review of recent publications on the treatment of pulmonary phthisis with the following "brief retrospect of the progress made, on the whole, towards a clear idea of the best way of treating consumption."

1. It seems difficult to doubt any longer that the circumstances, whatever they are, which prevail in certain mountain valleys offer a more complete immunity from phthisis to the natives, and a better chance of cure to phthisical visitors, than is afforded by any other mere climatic influence whatever. It also appears very doubtful whether the influence really is climatic merely, and quite certain that it, at any rate, is not regularly proportionate to the mere degree of elevation of the district.

2. It is nevertheless impossible to suppose that all the benefits which have been attributed to warm southern climates were imaginary; on the contrary there is scarcely a practitioner who has not seen the greatest benefits accrue from sending consumptive patients to climates which, compared with their own, may be called, on the whole, decidedly mild and equable. Note here, however, two points. With very few exceptions those climates which have been popularly associated with this idea are, in reality, both much less mild, and much less equable, than the majority either of patients or even of medical men are accustomed to think, until they have had personal experience. And secondly, those who are in the habit of analysing results with care have often noted this singular fact—that patients who have returned from wintering at such places, where they had expected to be bathed in the luxury of the *ideal* "Italian" climate, complaining bitterly that they have been starved with cold, and really giving evidence in some particulars of apparent increase of catarrhal mischief for the time, do nevertheless appear after a short interval to show the unmistakeable influence of their winter sojourn, unpleasant though it has proved to them.

3. A more important practical observation than any other, except that

of the influence of elevated health-resorts, is the discovery of the extraordinary value of *long sea-voyages*, which, during the last few years, has been increasingly impressing itself on the medical mind. It is, perhaps, not too much to say, that we are now certain the voyage itself was the only really beneficial agent in the otherwise mistaken and disastrous practice of sending consumptives to Madeira.

4. The kind of alimentation and medication which alone are useful is now pretty well settled; the only question which remains open being the degree of development that may be given to the use of certain metallic tonics, especially arsenic, which seems to offer the good results of iron *plus* an unknown, but probably very valuable, influence on the nervous centres.

5. The question of the kind and amount of physical exercise to be enjoined or permitted offers serious difficulties: but it also, so we think, promises to shed indirect light on the general climatic question. It is, on the one hand, known that great benefits often result from the mere influence of the free use of open-air exercise, independent of temperature or the other features of climate. It is, on the other hand, loudly protested by some of the most experienced practitioners,* that nothing more frequently ruins a patient's chances of recovery than the incurrence of muscular fatigue. Now let us turn to the instance of long ship-voyages, a mode of treatment which is quite indisputably successful in a great number of cases—does it not strike the reader forcibly, on reflection, that one most important circumstance of ship board life is its *lazy, effortless monotony*, giving nearly perfect *rest*, if one may say so, to both bodily and mental muscles? Now, the other grand feature of life on a ship is the *constant and copious inhalation of air free from organic impurity* and charged only with matters (especially, perhaps, chloride of sodium) which are directly beneficial to nutrition and general health. Does it not seem as if there were, after all, a common measure, discernible if not completely definable, to all the various plans of hygienic treatment for consumption which of late years have commanded any wide support from medical men? It appears to us that we may tabulate side by side the elements of equal success from either of two modes of treatment:

1.	2.
Prolonged residence in a high but fairly sheltered mountain valley.	A prolonged ocean voyage.
Free carriage exercise, little or no walking.	Free exposure on deck, only gentle and slight walking exercise.
With, of course, all proper precautions about warm clothing, and the avoidance of draughts indoors.	Same precautions about sufficient clothing, and avoidance of draughts, getting chilled with wet clothes, &c.

If this view be ultimately justified by larger experience, it will then, we think, be obvious that by either of these two plans we offer, in a regular

* We may mention that Dr. Burslem of Bournemouth has particularly enforced this view, in conversation with us.

and necessary manner, all those advantages which are only partially and in an uncertain and fluctuating way afforded by the fashionable health-resorts of which the Riviera may be taken as the type; and that there is no evidence that the latter really possess special advantages of their own. The copious inhalation of an air comparatively free from organic impurities very probably accounts for five-sixths of all the benefits received at such places; and to the pleasing novelty of a foreign residence we should be inclined to attribute the rest.

11. *Spontaneous Ptyalism.* By C. W. KNIGHT, M.D., Post Lampasas, Texas.

[*Med. and Surg. Reporter*, May 21, 1870.]

Dr. K. describes the symptoms of his patient as follows:

Two days previously he had noticed that his mouth was unusually "watery;" but he had not thought much of it until waking this morning he found his pillow and night-shirt saturated with saliva. He also said that he felt a "little stiff and sore in the jaws." He stated positively—and I place great confidence in his desire to tell me the entire truth—*that he had been taking no medicine of any kind*, with the exception of two Seidlitz powders, which I had given him to relieve a tendency to constipation. On examination I found the parotids slightly enlarged and indurated with increased sensibility to touch. The gums were swollen and moderately sensitive around the molars. The tongue looked healthy, with the exception of a little whitish fur near the base. The breath was offensive, resembling in odor that of the body of an uncleanly man. On careful inspection the teeth were found to be perfectly sound, and entirely free from any sharp edges that might act as sources of irritation. Being his messmate, I knew that his diet had contained a full allowance of fresh meats and vegetables. I had many opportunities for knowing that his health had been good in every respect, excepting that his bowels had been constipated, as previously mentioned.

The treatment, conducted with the remedies commonly applied to mercurial ptyalism, chlorate of potassa, iron, &c., failed in arresting the affection, which grew worse. Finally Dr. K. ordered the mouth to be thoroughly washed every half hour with a saturated solution of common salt, and touched the ulcers on the tongue and cheek with a crystal of rock salt; the patient then improved rapidly, and under a tonic regimen was well in two weeks.

At every application the patient said a cool and pleasant sensation was imparted to his mouth. He soon acquired the habit of keeping a small lump of salt in the mouth, and said it was as pleasant as a piece of ice to his parched tongue. The fetor of his breath was markedly controlled by the salt, so that the almost unbearable odor of the cabin was soon dissipated.

12. *Treatment of Chronic Constipation.* By Dr. JOHN KENT SPENDER, Bath.

[*Amer. Practitioner*, May, 1870; from *London Med. Times and Gaz.*]

Dr. JOHN KENT SPENDER, Bath, says that his plan for managing this condition comprises four therapeutic factors: minute and frequent doses of watery extract of aloes, very rarely of extract of colocynth; a dose of sulphate of iron (gr. jss or ij), always combined with each dose of the direct aperient; regulation of the diet; constitutional exercise. The quantity of extract of aloes, in all but extraordinary cases, should not exceed one grain. It is conveniently given in the form of a pill. With this pill there should always be mixed a dose of sulphate of iron, varying from one to three grains; this is the essential point of the treatment. Any other tonic of the neurotic kind can not supply the place of the iron; iron is not only *facile princeps*, but is not interchangeable by anything else. Extract of *nux vomica* may be added as an ornamental appendage or as a means of blending the other constituents together, and belladonna is a remedy of definite auxiliary power; but both these drugs, *quoad* constipation of the bowels, are uncertain or unsatisfactory, and rarely do permanent good. An adult patient should take a pill composed as above three times a day, immediately after the principal meals. He is cautioned that at first there will be probably no apparent effect, and that two or even three days may pass before any medicinal evacuation of the bowels takes place; perhaps even then difficult and discomforting. But within the next forty-eight hours there will be most likely an evacuation of the bowels once or possibly twice in the day; *but nothing approaching to purgation ought ever to be permitted*, and therefore the patient must be instructed, on the occurrence of the first loose motion, to withhold a pill, and to take only one in the morning and one in the evening. He continues for a time his morning and evening pill. Not improbably, at the end of another week or fortnight, he is compelled by the same reason as before to drop another pill, and the same result is now brought about by one pill daily as was originally produced by three pills. Within another month he may reduce his allowance of medicine to a single pill once or twice a week; and finally, a pill occasionally for the sake of maintaining health and warding off old troubles.

There is a form of constipation, observed chiefly among women, marked by intense neuralgia of the rectum after every motion. It is well to ascertain that there is no fissure of the mucous membrane; but, this point being assured, speedy (and eventually perhaps complete) relief may be obtained by the following powder taken twice a day: sesquioxide of iron, one drachm; bitartrate of potash, one drachm; powdered cubebs, fifteen grains; mix. This may be continued once daily for weeks or months.

or only slowly diminishing with the reduction of the biliary coloring matter in the blood.

Again, a case may occur in an aged person, attended by severe attacks of pain in the right hypochondriac region, nausea, emesis, perhaps spasms of superior or inferior extremities.

We would risk much in pronouncing this a catarrhal attack, and it is much more likely that we have a permanent obstruction; perhaps the pain is dependent upon strong tension of the ductus choledochus and hepaticus, or perhaps it is occasioned by the process of stagnation ("stauung").

Should we have carcinoma before us it is quite likely that catarrhal icterus may arise from the resultant irritation. When pain occurs during the commencement of icterus, it is probable that the jaundice does not arise from catarrh; but this may occur secondarily.

When icterus occurs for the second time, we must carefully observe if the individual may possibly have a permanent obstruction or not.

When jaundice occurs repeatedly in very young individuals, we have difficulty in deciding that gall-stones are the cause; but we may say, This individual frequently suffers catarrhal disease of the duodenum, ductus choledochus, and hepaticus; the icterus being recurrent, the diseased condition must return at stated intervals.

As soon as the age is somewhat advanced, however, a frequent recurrence of icterus will justify the conclusion that we have to deal with a permanent obstruction; and we have no doubt on the subject if intense pain is an accompaniment. If the icterus last very long—months, for example—we surely have permanent obstruction, either from gall-stones or neoplasmata.

Catarrhal disease of the stomach, bowels, or biliary ducts, does not, as a rule, last so long; indeed a return of the flow of the bile shows itself during the continuation of catarrhal disease. A long-continued icterus also shows some peculiarities in the coloration of the skin; in some cases it becomes somewhat greenish, in some even blackish or brownish, and when this happens the probabilities are that gall-stones or neoplasmata are present.

14. *Confluent Small-Pox Treated by Carbolic Acid.* By M. CHAUFFARD, Paris.

[*Bull. gén. de thérap.*, May 15, 1870; from *Abeille médicale*.]

M. CHAUFFARD recently made the following communication to the *Société médicale des hôpitaux*:

"The treatment of which I have to speak consists in the use of the crystallized carbolic acid in large doses, a therapeutic means which has shown to me its efficacy in the secondary fever of severe confluent small-pox, that secondary period to which, as we know, the greatest number of those suffering from that disease succumb.

"To judge more manifestly of the efficacy of this remedy, I have applied it exclusively to five cases of decided severity, and to my very great surprise I have seen the violent febrile phenomena and the accidents of suppuration abate rapidly in all these cases which seemed absolutely beyond the resources of art. A single one of these five patients succumbed, but only after he had regained appetite and been out of bed for a fortnight; he died suddenly, and the carefully performed autopsy did not reveal anything but a certain degree of pulmonary congestion, an affection of which the patient had shown signs, however, previously.

"The idea of this medication had been suggested to me by the essay of M. SANSON on the happy effects of the use of carbolic acid in large doses in the treatment of mountain sickness (*mal de montagne*). The dose I employed was 1 gramme of cryst. carbolic acid in a draught of 125 to 150 grammes, and I have continued it for eight or ten days without any toxic accident, without any indication of gastric or intestinal intolerance, without any complaints even in regard to the taste of the draught. The medication is completed by external lotions with carbolized water of 1 or 2 per cent. The dose of carbolic acid employed internally should be lowered in the case of women and children according to the usual rules of posology.

G. B.

HYGIENE.—STATE AND FORENSIC MEDICINE.

1. *On the Prevention of Venereal Diseases.* By W. F. MUNROE, M.D., Boston.

[*Boston Med. and Surg. Journal*, May 19, 1870.]

One of the most curious anomalies in the social system of the Anglo-Saxon race is the position of prostitution and its attendant diseases. So well recognized as to be called the "social evil" *par excellence*, the whole question has until recently been persistently avoided by law-makers and sanitarians, while the evil, practically protected by prohibition, has gone on gaining strength and becoming more and more unmanageable and pernicious. This neglect is due undoubtedly to the natural antipathy felt for a disagreeable subject; to fear of opprobrium from associating one's name with the revolting details which must be entered into; and last, though not least, to the wide-spread ignorance as to the extent and influence of the evil. In this age, however, now that public attention is

turned toward public hygiene, a strong reaction is taking place, and the question is at last beginning to receive some of the attention which it deserves. One of the earliest results of this awakening is seen in the passage of the "Contagious Diseases Act" in England, so long the stronghold of prejudice and disease, and another in the report before us.* The importance attached to the subject by the Congress can be inferred from the excited debate which it gave rise to (see report by Dr. J. B. UPHAM, in this *Journal* for August 20, 1868), from the appointment of the Committee by a unanimous vote, and from the character of the members of the Committee. It may be mentioned, in passing, that Drs. CROCQ and ROLLET, who were selected to draw up the report, were peculiarly fitted for the task, both as hygienists and syphilographers.

Syphilis is a disease dangerous to all classes—virtuous as well as vicious, rich as well as poor. It may be communicated by knives, forks, spoons, drinking utensils, or any object which passes from mouth to mouth. This is illustrated by an epidemic which broke out in a large glass-blowing establishment in the south of France in 1858 (reported by ROLLET, of Lyons), and infected the whole community to such an extent that the attention of government was called to it, and the passage of the same tube from one mouth to another forbidden by law. Impure vaccine matter may be the vehicle of contagion. A child may infect its nurse, or the nurse may infect the child. In fact, an infected individual is a source of danger to all about him—a danger much increased by frequent relapses of the disease and the general ignorance upon the subject. Even when external symptoms may be wanting in the father, he may beget an infected fœtus which in turn may infect the mother through the womb. In this case, either abortion results or the child comes into the world diseased. Supposing the fœtus or child to escape the specific contagion, the hereditary taint is shown in an increased tendency to constitutional diseases of various kinds. These results are shown in the gradual depopulation of some of the Pacific Islands since the introduction of syphilis by the marine of civilized nations. Thus, apart from the personal suffering of the vicious, venereal diseases are the insidious and persistent source of more ill to the world than the epidemics against which the whole machinery of government is put in motion.

The direct and indirect expenses accruing to the State and city from prostitution, with its concomitant crimes and diseases, are immense. SANGER (*Hist. of Prost.*, p. 605), by carefully made estimates, finds that

* *Prophylaxie Internationale des Maladies Vénériennes*, par Messieurs CROCQ (de Bruxelles) et ROLLET (de Lyon). Rapport fait au nom de la Commission nommée par le Congrès Médical International de Paris, de 1867.

COMMITTEE APPOINTED BY THE CONGRESS. *Foreign Members*.—Drs. DE MERIC of London, HEBRA of Vienna, SEITZ of Munich, CROCQ of Brussels, SECO-BALDOR of Madrid, GALLIGO of Florence, PALASCIANO of Naples, OWRE of Christiana, BARBOSA of Lisbon, FRIEDRICH of Berlin, HUBBENET of Kiew, FORDYCE BARKER of New York, WILSON JEWELL of Philadelphia, J. BAXTER UPHAM of Boston, HINGSTON of Montreal, McILVAINE of Cincinnati.

French Members.—Drs. BÉHIER, BOUILLAUD, DECHAMBRE, GOSSELIN, JACCOUD, JEANNEL, MONGEOT, RICORD, ROLLET, TARDIEU, VERNEUIL.

ten per cent. of the police and judiciary expenses of New York city are due to these causes. Add to this their proportion of penitentiary, work-house and hospital expenses, and we raise the sum to nearly seventeen per cent. of the entire municipal expenses. (This was in 1857.) In this calculation no account is taken of the outlay for private medical assistance, the value of time lost, &c.

Private interests also demand some remedy for the present state of affairs. "There is the money a working man must pay for his cure; this is his share of the loss. There is his unproductive time, and the loss of profits upon his labor; this is his employer's sacrifice. There is the deprivation of comforts and necessaries experienced by his family and dependents; this is their penalty. Society is thus involved in a general loss on account of an act of folly, or passion, or crime (call it which you will), committed in a concealed and secret haunt. and such loss could be saved by the intervention of proper means." (SANGER, *op. cit.*, p. 24.) In the British Army, previous to 1866, when the Contagious Diseases Act was passed, there was an average annual loss of nearly nine days' duty to each man from venereal disease. Since the passage of the act, this proportion has much decreased in the twelve cities in which it is in operation.

After carefully considering the sad results of these wide-spread diseases, even the severest moralists can hardly deny that their ravages should be stopped, or checked as much as possible. Can legal enactments accomplish either of these objects? "The policy of indifference and *laissez-faire* has had a full and fair trial, and in every respect it has been found wanting. In the number of the *Westminster Review* for July, 1869, we described its ill effects on the civil population of England, and showed that those effects have been, and still are, most disastrous." (*Westminster Review*, January, 1870.)

Prohibition is the first legal remedy which suggests itself; and, as this has been the policy of nearly every nation at times, we have abundant data from which to draw our conclusions. In Prussia, in particular, there have been several attempts at suppression, followed invariably by a return to police regulation. The results of the last attempt, in 1845, are instructive. "During the two years previous to the suppression, the number of men received at the hospital (for venereal disease) was 741 in 1844 and 711 in 1845." During the three succeeding years, the numbers were 817, 894 and 979. The females increased in about the same proportion, and their average sojourn in the hospital rose from 24½ to 32½ days; the average time which each man remained in the hospital rose from 37½ to 49½ days. (*Westminster Review*, Jan., 1870.) What better proof could we have of the increase in frequency and severity of the disease? In Rome, where the system of government is such that repressive measures can be fully enforced, there are no public houses of prostitution, but the laxity of principles among the people of all classes is perhaps greater than in any other European city. Stockholm, where there are no houses of prostitution, and where two which were established a few years ago were immediately torn down by a mob, is perhaps its strongest rival, showing that climate and temperament are not the causes which explain

this. As SANGER (op. cit., p. 19) says:—"It is a mere absurdity to assert that prostitution can ever be eradicated. Strenuous and well-directed efforts for this purpose have been made at various times. The whole power of the Church where it possessed not merely a spiritual, but an actual secular arm, has been in vain directed against it. Nature defied the mandates of the clergy, and the threatened punishments of an after life were futile to deter men from seeking, and women from granting, sinful pleasures in this world. Monarchs, victorious in the field and unsurpassed in the council chamber, have bent all their energies of will, and brought all the aids of power to crush it out; but before these vice has not quailed. The guilty women have been banished, scourged, branded, executed; their partners have been subjected to the same punishment; held up to public opinion as immoral; denuded of their civil rights; have seen their offences visited upon their families; have been led to the stake, the gibbet, and the block, and still prostitution exists. The teachings of morality and virtue have been powerless here. In some cases they restrained individuals; upon the aggregate they are inoperative." Certainly it does seem clear that prohibition is not the agent by which prostitution is to be extinguished.

In this connection a most important question arises, as to whether the extinction of prostitution is really an object to be desired. Whether turning the stream of men's passions from the channels in which they now run, and compelling them to overflow into the domestic circles of society, would not be a still greater evil. "The essentially exclusive nature of marital affection, and the natural desire of every man to be certain of the paternity of the child he supports, render the incursions of irregular passions within the domestic circle a cause of extreme suffering. Yet it would appear as if the excessive force of these passions would render such incursions both frequent and inevitable.

"Under these circumstances there has arisen in society a figure which is certainly the most mournful, and, in some respects, the most awful, upon which the eye of the moralist can dwell. That unhappy being whose very name it is a shame to speak; who counterfeits with a cold heart the transports of affection, and submits herself as the passive instrument of lust; who is scorned and insulted as the vilest of her sex, and doomed, for the most part, to disease and abject wretchedness and an early death, appears in every age as the perpetual symbol of the degradation and sinfulness of man. Herself the supreme type of vice, she is ultimately the most efficient guardian of virtue. But for her the unchallenged purity of countless happy homes would be polluted, and not a few, who in the pride of their untempted chastity, think of her with an indignant shudder, would have known the agony of remorse and despair. On that one degraded and ignoble form are concentrated the passions which might have filled the world with shame. She remains while creeds and civilizations rise and fall, the eternal priestess of humanity, blasted for the sins of the people." (LECKY'S *History of European Morals*, vol. ii. p. 299.)

The condition of Roman society, the licentiousness of Stockholm and

the results of prohibition in Prussia, Bavaria, and all other countries where it has been tried, show not only the futility of repressive measures, but their positively bad effect in the increase of venereal disease and the demoralization of society.

In England and this country the policy is that of indifference. The Massachusetts Statutes place "common pipers and fiddlers, stubborn children, runaways, common drunkards, and common nightwalkers," in the same class, and inflict upon them the same punishment. Fornication is liable to imprisonment not exceeding three months, or a fine not exceeding thirty dollars. Keepers of houses of ill fame are liable to imprisonment not exceeding two years. Thus our treatment of the social evil, like that of the English, is theoretical prohibition but practical freedom, the effects of which may be seen from the statistics given in connection with the subject of regulation.

The limits of this article will not allow the citation at length of authorities, but it is an established fact that all sanitarians who have considered the subject, recognize its immense importance in its bearings upon public morals and public health, and agree in saying that a thorough ventilation and consideration of the question is required. Even those most opposed to licensing brothels, concur in this, that some remedy must be found, and that the extent and influence of the evil must be understood before any steps can be taken toward this. Even in England the question is being freely discussed, and has already given rise to several debates in parliament, as well as in many of the medical societies, and to several articles in the Westminster Review which I hope to examine in another paper.

After remarking that the extinction of venereal disease is not an Utopian idea, since it never arises except from direct contagion, the report recommends the periodical examination of women of the town, and strengthens its position by statistics showing the proportion of disease in countries where these are enforced, to disease in those where no provision is made. In the English army (prior to the Contagious Diseases Act) there was an annual average of 309 cases of venereal diseases to 1,000 men; in France, where the regulations are imperfect, 113; in Belgium, where they are more perfect, only 98. The effect of England in the dissemination of these diseases can be readily inferred. As the report says, "As long as prostitution is not regulated in England and the United States, so long are projects for the prevention of venereal diseases radically imperfect, since they lack that international character which can alone render them efficacious" (p. 13). The committee also make the obvious remark that "the future of the Anglo-Saxon race is at stake; it cannot be in vain that venereal diseases infect English blood with their principle of degeneracy to twice, thrice and four times the extent to which they infect that of other nations. However well favored by nature the race may be, it cannot long preserve from this contamination the native vigor of which it is so proud, nor even its moral energy." (p. 17.) The Contagious Diseases Act (see p. 7) is approvingly referred to as a first step, but its general application to the civil population advised. This is

also advocated by the Harveian Society of London (composed of many of the leading physicians in England). In the question of international prophylaxis, the part of the United States is perhaps less important than that of England, with its numerous colonies and stations. Still it is important, and it is satisfactory to find that the belief in the expediency of regulation is rapidly gaining ground among the medical profession here.

General Regulations of Prostitutes.—After alluding to the comparatively recent attempts at suppression in Spain, Italy and Prussia, an account is given of the stringent prohibitory law now in operation in Bavaria. This went into effect in 1861, when there were but a few public houses of prostitution in the city, and these well under police supervision. By the new law, however, any one furnishing a house for the purpose, as well as all women guilty of prostitution, are punished by imprisonment for a term not less than one month nor more than one year. "In this manner the public houses were soon closed, but the moral and physical condition of the people is far from having gained by it. Prostitution has not decreased; it simply conceals itself, and the more effectually it conceals itself the more damage it does. Medical visits to the women have been done away with, but the number of patients in the hospital affected with venereal disease has doubled in five years." Even in France and Belgium prostitution is not regulated by the general government, only by the municipal police, and a change is strongly recommended by the Committee. To make any measure efficient, unity of action is required. "Prostitutes are as cosmopolitan as the corruption in which they originate. Hygienic and other regulations proper to prostitution are equally necessary and should be similar in all localities." "It is the unanimous opinion of our colleagues that every efficient system of prevention should look particularly toward limiting the number of free prostitutes, and thus obviating the dangers of clandestine prostitution. Where dispensaries for the compulsory examination of women are established nearly the entire danger to the public health is due to clandestine prostitution." "In cities in which this sanitary service is well organized, the proportion of diseased prostitutes (subject to the regulations) does not exceed 2½ per cent. On the contrary, in the raids occasionally made by the police upon the free prostitutes the proportion is vastly greater" (averaging at least 50 per cent.) From what has been said it is easily understood that, in order to get at the real source of venereal infection, the nearest possible suppression of clandestine prostitution is necessary. "Your Committee, in accord with Medical Congress, and we can say in accord with nearly the entire body of medical men, cannot insist too strongly upon this point."

"This suppression can be obtained only by a department of public morals (bureau des mœurs), composed of a sufficient number of experienced agents, and having at their head an intelligent and thoroughly honest chief. To this department must be entrusted the mission of seeking out clandestine prostitution. It must pursue it without flagging, and strive to reach it under all disguises. But, in the hierarchy of vice there are many degrees." At what point should the police intervene? This is a

delicate point, which should be left in the first place to the head of the department. It is he who is to decide upon the lot of clandestine prostitutes by the propositions which he submits to superior authority. Such functions are responsible ones, and the committee think that a species of magistracy should be created for them.

Examination of Men.—Society has long looked to women as the sole source of venereal infection, neglecting entirely any sanitary precautions as relating to men. One of the most active sources of infection is in the army and navy, the organization of which makes the application of sanitary measures peculiarly easy. The merchant marine also has a large share in the propagation of venereal diseases, as shown in the gradual depopulation of so many of the Pacific islands already referred to. In fact, war and commerce have been the means of spreading the disease over the world. Columbus (according to many authorities) carried syphilis to Europe from America. The Italian expedition of Charles VIII. diffused it through Italy, and the general war resulting from this expedition spread it over the whole continent. Africa, India and Japan are supposed to have received the syphilis from the Portuguese marine; Norway from its commercial relations with Holland; Scotland from Cromwell's army. In fact, the history of the spread of syphilis is a part of the history of all the great expeditions since the fifteenth century. The statistics of the English Navy from 1860-67 show an annual average of 64 cases of syphilis per 1000 men, and 85 of venereal diseases of all kinds. The cases of syphilis in these seven years increased from 50 to 71 per 1000 men. These figures make it easy to understand the influence which the navy can have in disseminating disease, and the injustice which may be done those places where disease has been kept at a low rate by sanitary precautions. At Bastia the rate of venereal disease in the hospital was raised from 6 to 15 per cent. in one year by the arrival of one foreign regiment. "In the army and navy two classes of visits are required, *i.e.*, those at regular intervals, and those under certain specified circumstances, at the time of joining or returning to the regiment, leaving on furlough, changing garrison, embarkation and debarkation." These visits are enforced to a certain extent in the French army and navy, but more thoroughly in Belgium, and their results can be seen in the statistics already given on page 13. Only a small part of the population, however, receive the benefit of these visits, and the prevailing opinion of the International Congress is that these provisions should be extended to the merchant marine. As far as the seamen are concerned, this would not be difficult, but the principal obstacles would be offered by the desire of captains and shipping masters to get men, no matter what their condition might be, at times when sailors are scarce. Even the existing quarantine laws, mild as they are, are not supported without impatience. These objections the Medical Congress does not pretend to answer, but would refer them to an International Commission, officially appointed to confer upon the prophylaxis of syphilis.

Hospital Accommodation. Public Aid. Mutual Aid.—Throughout the civilized world the hospital accommodations for this class of diseases are

notoriously insufficient. In fact, such cases are turned away from many of the public institutions. In the London hospitals there are not more than 250 beds for sufferers of both sexes from venereal diseases, while the Harveian Society estimates the number required at not less than 1500. In France even, there is nearly the same lack of accommodations. Thus, instead of the sequestration so imperatively demanded by a regard for public health, the infected are denied even an asylum.

When the local authorities alone make the necessary sanitary rules, they are as a matter of course taxed with the results of their neighbors' negligence. Consequently it is the duty of the State to assume the control. As to the treatment of sailors in seaport towns, some arrangement should be made by the different nationalities in regard to the expenses, &c. Mutual aid societies should allow assistance to members disabled by venereal diseases as well as to those disabled by other causes.

The danger of infection by vaccination (when blood is mixed with the lymph), that from circumcision where suction by the mouth is practised, that to glass-blowers where the tube is passed from mouth to mouth, that from the common use of ordinary household utensils, are dwelt upon; also the obvious precautions to take.

Some medico-legal authorities have advised a law forbidding the marriage of any one once affected by syphilis. This the Committee oppose on the ground of its impracticability. Instructions should be given the public by which the forms of syphilis could be understood and the dangers avoided as much as possible, on the same principle as the instructions given the people (in France) in regard to typhus fever, cholera, &c.

"All disguises and false modesty must be ignored. It is absolutely necessary that the people should understand these diseases; in the first place because danger understood is more easily avoided, and in the second place because the governments need the aid of public opinion in this campaign against syphilis, where there are not only so many evils to combat, but so many prejudices to overcome."

Syphilization, as a prophylactic, is reported against.

The report concludes by saying that it is the duty of the French government to convoke an international commission to consider the question of international prophylaxis.

NOTE.

"Public opinion in Great Britain and Ireland is rapidly coinciding with the views of those sanitarians who are advocating legislative means for the purpose of arresting the spread of contagious venereal diseases. A few years ago, he who would venture to suggest desirability of State interference in such a matter would have been scouted by the non-medical section of the community; but the enormous physical evils which result from untrammelled prostitution are now so potent that all save the most prejudiced admit that they demand a prompt remedy. If the non-recognition of this 'social evil' could tend in any way to lessen the vice, there would be some excuse for those whose over-prudishness leads them to object to any interference on the part of the State. But the history of all nations shows that both the moral and physical evils arising from prostitution have been increased instead of lessened by allowing the unhappy creatures to remain free from the surveillance of the authorities. Efforts have been made from time to time in most civilized countries to eradicate prostitution, but not only did these attempts prove failures, but they actually, in many instances, induced a general corruption of morals. In the year 1845 all

the brothels in Berlin and others of the large Prussian towns were forcibly closed by order of the king, and public prostitution was proscribed under severe penalties throughout the kingdom. Very soon the results of this system became apparent. Illegal prostitution rapidly spread. The public morals became worse than ever. The number of illegitimate children increased. There appeared to be a general profligacy pervading all ranks of society, and finally venereal disease became more virulent and wide-spread. After six years' experience of this method of stamping out prostitution, the king was prevailed upon to repeal his edict and to allow the re-establishment of brothels under surveillance of the authorities." (Half-yearly Report on Public Health, by Charles A. Cameron, M D, Professor of Hygiene and Political Medicine, Royal College of Surgeons, &c. &c. Dublin Quarterly Journal of Medical Science, Nov., 1869.)

2. *On Signs in determining whether a Child was born alive or dead.** By H. RAPHAEL, M.D., New York.

[*Medical Gazette*, March 26, 1870.]

The medical witness, when called upon to testify in the case of an adult, as to the probable cause of death, if he be sufficiently versed in pathology, and capable of drawing conclusions from post-mortem appearances, will always find sufficient upon which to base his evidence and establish the cause of death; those enigmatical and mysterious cases, in which an inscrutable power has brought about a final dissolution, by destroying or deranging the collective animal functions which we call life, by an arrest or suspension of the nervous influences, excepted. In the child, however, it is often not merely a question as to the probable cause of death, but also as to whether the child was born alive at all, whether it was viable, capable of sustaining an independent existence; and the physician has the additional task imposed upon him of establishing this fact beyond all doubt, for not till then does the question of murder or infanticide arise, and not till then can the accused be tried for that offense. But as in the case of the adult, that morbid process, the final dissolution, generally leaves certain unmistakable evidences behind, by which we are able to affirm as to the probable cause of death, so in the child, life, which constitutes one grand physiological process, when once established, is marked by various important and interesting conditions, the presence or absence of which clearly indicate whether the child was born alive or dead.

These conditions may be stated to be four in number namely: (1), the state of the foetal circulatory passage, (2). the appearances presented by the lungs; (3). the condition of the funis; and (4). the process which takes place in the kidneys and is known as the uric acid infarction.

1. The state of the foetal circulatory passages. To comprehend the phenomena here met with, it is necessary to say a word or two explanatory of the anatomy of the parts. The foetal, like the adult heart, is composed of four compartments, two auricles and two ventricles, with the arterial and venous trunks springing from them. Here, however, the resemblance between the foetal and adult hearts ceases; for while the latter collects the venous blood from the general system, transmits it to the lungs and when it is oxygenated by these organs receives it again to

* Read before the Medico-Legal Society of New-York, Feb. 15th, 1870.

distribute it throughout the general system; in the foetal heart, the blood is arrested in its course and but a small quantity of it reaches the lungs; more than nine-tenths passes directly into the aorta, and thus into the general arterial system. This process the foetal heart is able to accomplish through its peculiar anatomical construction, (1) by its foramen ovale, or communicating aperture between the auricles being still open, thus allowing the greatest part of the blood to pass from the right into the left auricle, and (2), by the ductus arteriosus Botalli, which is nothing more than a communicating passage between the pulmonary artery and the aorta. This passage serves to arrest the flow of the blood through the pulmonary artery on its way to the lungs, to transmit it into the aorta and thus into the general circulation. In the greatest majority of cases, these two passages peculiar to foetal life become closed as soon as the child has been delivered, begins to respire, and the lungs to perform their functions. The borders of the Eustachian valve become united to those of the foramen ovale, while the ductus arteriosus becomes obliterated and converted into a white fibrous cord. The latter process is affected through a double cause; namely, by the diversion of the current of the blood toward the lungs and by the pressure of the left bronchus, caused by its distension with air. Now the blood instead of passing from the right into the left auricle, through the foramen ovale, passes down into the right ventricle, and instead of passing from the pulmonary artery into the aorta, through the ductus arteriosus, passes on to the lungs and thence back again to the heart.

2. The phenomena presented by the lungs. During foetal life these organs are in a state of inertia, dormant, so to speak; no air whatever and but little blood, (sufficient only to nourish them) circulates through them. The alveoli are collapsed, the bronchi of the lesser order undistended, the lungs undilated and they occupy but a portion of the thoracic cavity; but so soon as the child is transferred from its mother's womb into the world, and with the establishment of the changes in the circulation described above, a larger quantity of blood rushes to the lungs, the latter become distended and henceforth, air and blood continue to circulate through them. These two great changes are brought about by the first act of the child, namely, that of inspiration, and are intimately connected with and depend upon each other. Hence we find in the child who has respired several times (and still more so if it has lived twenty-four hours, that the foetal circulatory passages are occluded, the alveoli distended and the lungs dilated, and although they are actually heavier than foetal lungs in consequence of the greater quantity of blood they now contain, they are nevertheless lighter than water, because of the air that is present in the pulmonary vesicles, swim in that fluid, and have a soft doughy feel. The appearance, presented by such a lung on section, as compared with a nondilated lung, are highly characteristic; whereas the latter is dense and solid in structure, and of a dark red or blackish color, no bubbles of air whatever escape from the cut surfaces, which in addition are almost perfectly dry; the lung that has already inhaled air is of a bright red color, soft, doughy and elastic to the feel, the alveoli on

close examination are seen to be patulous, and on scraping the cut surfaces with the knife, some serum mixed with minute air bubbles is obtained. (The foetal lungs, by the way, may also be inflated, when they will present appearances almost identical with those taken from a child who was born alive.) The importance of these phenomena, especially those presented by the pulmonary organs, in determining whether a child was born alive or dead, must be apparent to every one, for the lungs of a still-born child never present any other conditions than those peculiar to foetal life.

The third class of phenomena, those which take place about the funis, although brought about by a morbid process, in so far as the desiccation, degeneration, and death of that portion of the umbilical cord remaining attached to the body of the child implies, is nevertheless a regular physiological metamorphosis; for it takes place in all living healthy children, as a rule, between the second and fifth day after delivery. This physiological process commences as soon as the placenta or after-birth has been detached and expelled from the uterus, or more correctly speaking, as soon as the funis has been divided, as soon as the circulation in the umbilical vessels has been arrested, and is produced by the serum contained in the Whartonian gelatinous substance which fills out the umbilical cord becoming evaporated and absorbed. The vessels then contract and shrink, and that portion of the cord remaining attached to the abdomen of the child, shrivels, dries up, and finally, usually by the third day of life, falls off. All these phenomena only take place in the living child. In the still-born, and in the infant dying soon after birth, these processes do *not* take place. The umbilical stump in that case soon begins to rot, and putrifies even sooner than the rest of the body. The various stages at which the physiological process of the desiccation and falling off of the navel is arrested, in case the child dies soon after birth, may also serve to indicate the age of the child at the time death ensued.

It is scarcely necessary to point out the value of this sign in medical jurisprudence. By carefully studying the phenomena which the drying up and falling off of the umbilical cord in health gives rise to, and its putrescence in still-born and dead infants, one may acquire such an amount of knowledge as to tell almost at a glance whether the child was still-born or living.

The fourth and last of the signs which we propose to notice is observed in the kidney. It is that condition to which German pathologists have given the name of uric acid infarction, and is simply a lithic acid sediment deposited in those organs. It is a comparatively recent discovery, and according to Virchow, Martin, Hessling, and others, is observed almost invariably in children dying between the first and tenth days of life. Engel says it is an extremely exceptional occurrence in still-born children, and a very rare one in those who have respired but one day. It consists of sharply defined golden yellow streaks of crystallized uric acid, and is found in the greatest abundance in the papillæ of the kidney. Under the microscope, says VOGEL, it is seen to be composed of small cylindrical columns, which, on pressure, readily crumble down into a

reddish brown amorphous lithate, containing some epithelium cells from the straight urinary tubules and minute rhomboid crystals of uric acid. Whenever these golden yellow crystals are found in the papillæ, some of them will also be found precipitated as a carmine-red powder in the pelvis of the kidney, and in the most dependent part of the bladder. VIRCHOW explains this phenomenon in the following manner: Immediately after birth a more rapid oxidation of the tissues takes place, in consequence of the establishment of the processes of respiration, and as a result thereof, among other products, uric acid is formed. This substance combined with the alkaline bases, is excreted by the kidney, but as yet does not find in the child the requisite quantity of water to dissolve it. The large quantities of the excreted urates accumulate in the straight tubules, and appear yellow, for they are combined with the coloring matter of the urine. The urine which is subsequently excreted in larger quantities, and consequently more diluted, partly dissolves this uric acid, partly washes it onward into the bladder, and thence outwardly. Indeed a red powder is now and then also found in the diapers of most new-born children, which on close examination is seen to be uric acid infarction.

“Regarded from a medico-legal point of view,” says VOGEL, “lithic acid infarction is not devoid of importance, for it is as positive a proof of life as the dilatation of the lungs by air, and has the additional advantage over the latter sign in not becoming so quickly changed with commencing putrescence.” I do not think the importance of this sign is forcibly enough expressed by these words. A phenomenon that occurs between the first and tenth days of life, very rarely after that period, and scarcely ever in still-born, may almost justify one in regarding its presence or absence as proof positive of life and death. For myself I have only to add that in six cases of still births carefully examined this winter, I failed to discover the least trace of it either in the kidneys or bladder.

As a *résumé* we will state briefly that the first series of phenomena described, the perviousness of the foetal circulatory passages, are very unreliable, for although they seldom close up before birth, so many instances, however, occur of children dying several days, and even as many weeks old. In whom these passages are still open, that they lose much in importance. The second, the dilatation of the lungs by air, is of considerable value, but these organs rapidly undergo degeneration, in consequence of the large quantities of mucus contained in the bronchi, so that on examining an infantile cadaver a few days after death, it is often totally impossible to state what their previous condition was. But given a case in which the lungs are found perfectly airless, the funis in a state of putrescence, the foetal circulatory passages still pervious, and no uric acid infarction in the kidneys or bladder, and there can be but little question as to the child having been born dead; while on the contrary, if there be uric acid infarction in the kidneys and bladder, the funis already fallen off or advanced in the process of desiccation, the lungs showing evidence of having been dilated, and the foetal circulatory passages occluded, and it will be equally proof positive of the child having been born alive.

ANATOMY AND PHYSIOLOGY.

4. *The Nucleus of Red Blood-corpuscles.* By W. S. SAVORY, Esq., London.

[*Brit. and For. Med.-Chir. Review*, Jan., 1870; from *Annals and Mag. of Nat. Hist.*]

Mr. W. S. SAVORY, in a paper read before the Royal Society, states that of all vertebrata, the red corpuscle is, in its natural state, structureless. When living, no distinction of parts can be recognized; and the existence of a nucleus in the red corpuscles of ovipara is due to changes after death, or removal from the vessels. As the oviparous red cell is commonly seen the existence of a "nucleus" is too striking an object to escape any eye, but that it is so is due to the circumstances under which the corpuscle is seen, and the mode in which it is prepared for examination. It is possible to place blood-cells under the microscope for examination so quickly, and with such slight disturbances, that they may be satisfactorily examined before the nuclei have begun to form. They may then be shown to be absolutely structureless throughout; and, moreover, as the examination is continued the gradual formation of the nuclei can be traced. The "nucleus" first appears as an indistinct shadowy substance, usually, but not always, about the center of the cell. The outline of it can hardly, for some seconds, be defined; but it gradually grows more distinct. Sometimes it never forms so as to be clearly traced in outline, but remains as an irregular shapeless mass, in its greater portion very obscure. Sometimes only a small part, if any, of an edge can be recognised, most of it appearing to blend indefinitely with the rest of the cell substance. Sometimes it happens that in many corpuscles the formation of a nucleus does not proceed even so far as this. No distinct separation of substance can anywhere be seen, but shadows, more or less deep, here and there indicate that there is greater aggregation of matter at some parts than at others. Occasionally some of the cells present throughout a granular aspect. When the nucleus is well defined, the cell wall is strongly marked; when one is confused the other is usually fainter. This, however, does not apply to color; on the contrary, when the nucleus is least colored it contrasts most strongly with the surrounding cell. As a rule the wall of the cell is more strongly marked than the nucleus.

To the objection that the nuclei are present all the while, but are at first concealed by the surrounding substance, the author replies that, when one cell overlaps another, the lower one is seen through the upper clearly enough to show that the substance of these cells is sufficiently transparent to allow of a nucleus being discerned if it exists. When a nucleus is fully formed it hides that portion of the outline of a cell which lies beneath it.

5. *A Fluid for Preserving Anatomical Specimens.* By Dr. C. MÉHU, Pharmacist to Necker Hospital, Paris.

[*Bull. gén. de thérap.*, April 30, 1870.]

After several trials for finding an anti-putrescent fluid for the preservation of anatomical specimens, Dr. M. obtained a formula which gave very satisfactory results. The liquid contains but little alcohol, hence does not exercise much contraction upon soft parts; it contains enough arsenious acid to prevent their softening and decomposition. In order to surely prevent cryptogamic growths, the author adds 1 per cent. of crystallized carbolic acid.

The formula of the preserving liquid is this:

Arsenious acid,	-	-	-	-	-	20 parts.
Crystallized carbolic acid,	-	-	-	-	-	10 "
Alcohol,	-	-	-	-	-	300 "
Distilled water,	-	-	-	-	-	700 "

The arsenious acid, finely powdered, is introduced into a glass flask, and the greater part of the alcohol added, together with about a third of the water; the flask is placed in a water-bath of boiling water, whereupon the greater part of the arsenious acid is promptly dissolved; the fluid is poured off and filtered, and immediately diluted with some more water to prevent precipitation on cooling. The small quantity of arsenious acid remaining undissolved is treated with the rest of the alcohol, and as above described. Finally, the carbolic acid is added, and the fluid agitated until quite homogeneous.

G. B.

6. *Suspension of Intestinal Secretion and Failure to Produce Purgation after Section of the Par Vagum.* By Dr. H. C. WOOD, JR., Philadelphia.

[*Trans. Coll. Phys. Philad.*, in *Amer. Jour. Med. Sc.*, April 1870, p. 395.]

I believe the Fellows of the College are generally aware that during the past summer I was engaged in an elaborate investigation into the action of certain alkaloids upon the heart and nervous system. In the course of this inquiry, after cutting the pneumogastric nerves and administering drugs, I was surprised to find that veratria and the allied alkaloid veratroidia failed to purge or vomit. I was at first disposed to assign this to idiosyncrasies on the part of the animals under observation; but upon investigation of the subject it became evident that this was not the cause, for when my experiments had reached nearly thirty combinations of the strongest cathartics had still uniformly failed to produce purgation. Ar-

senic, one of the most certain purgatives in the lower animals, failed in a number of cases. In order to render the experiments satisfactory, I, in some instances, purged the animal with calomel, and on the following day administered double the dose, adding one or two drops croton oil and ten grains of extract of jalap; but the bowels remained unmoved. The intestine was found pale, almost bloodless, with sometimes a little reddening of the mucous membrane. I was the more astonished at the failure, because the pneumogastrics are stated, in our works upon anatomy and physiology, to have no direct relation to the bowels. I have found, however, that Mr. KOLLMAN, in a prize essay published in the *Zeitschrift für wissenschaftliche Zoologie*, Band x., states that he has distinctly traced their distribution to the whole length of the intestine; and I have an impression that one or two English authorities have made a similar avowal. In looking up the literature of the subject I learned that Sir BENJAMIN BRODIE, in a paper published in 1814, mentions the failure of purgatives under circumstances similar to those which I have described. He employed arsenic, but his observations were only four in number. Dr. REID, however, repeating BRODIE's experiments, claims that he has found arsenic to increase the intestinal secretion as much after section of the par vagum as in the uninjured animal. I must, however, regard Dr. REID's observations as faulty. Only in one case does he mention the occurrence of purgation, while in the others he found merely mucus in the bowels, nothing being known as to how much was there before, and how much was secreted after the administration of the drug. I almost doubted the correctness of the statement that purging was produced at all, until my 25th experiment, when the bowels were violently operated on. Slight purging occurred in the 26th case also. Thus my observations show that in most instances it is impossible to produce purgation after section of the pneumogastric nerves, but that in a few cases there is a deviation from this rule. These are the facts; what explanation can be offered?

BERNARD and SCHIFF agree that if the pneumogastrics are cut in the neck, secretion is arrested in the stomach; if cut below the diaphragm secretion in the stomach is not affected. It is very difficult to divide the nerves in the cat (the animal on which I have operated) satisfactorily at this latter point. I have endeavored to do it, and have heretofore failed; but am willing to accept the results of these authorities. SCHIFF explains the arrest of the gastric secretion by the disturbance of the action of the heart and lungs. Now it is evident that arrest of secretion in the stomach must be identical in character with arrest of secretion in the bowels, and it is difficult to see exactly how this can depend on disturbances of the thoracic organs. I have therefore endeavored to form some other explanation of the facts, but am not, as yet, willing to commit myself to any theory. One that immediately suggests itself is, that the par vagum is the vasomotor antagonist of the abdominal sympathetic, since it has been found by SCHIFF, BERNARD, and others, that when the splanchnic nerves are cut the vessels of the intestine are dilated, and that when they are galvanized, or otherwise excited, the capillaries contract. BERNARD has

also proved that section of the pneumogastric in the neck causes the gastric mucous membrane to become pale. After section of the pneumogastrics in the neck it is practically impossible for the animal to swallow. I therefore, in some instances, administered the purgative from one to three hours before cutting the nerve. Sometimes catharsis had already commenced at the time of the operation; in such cases it then ceased. If it had not previously occurred it did not afterward take place. Arsenic and veratria were generally administered hypodermically.

GENERAL PATHOLOGY AND PATHOLOGICAL ANATOMY.

2. *Experimental Investigations on the Production of Œdema.*

By M. RANVIER, Paris.

[*Archives gén. de méd.*, Feb. 1870.]

M. CLAUDE BERNARD communicated to the *Académie des sciences* a note of M. RANVIER, in which the author refers to the fact that it is nearly two centuries since LOWER made the first experiments on the production of dropsies by the ligature of veins.

After a short historical sketch, in which he quotes the celebrated memoir of BOUILLAUD, M. R. relates his own observations: "I repeated," he says, "the second experiment of LOWER. Both jugular veins were tied in the lower part of the neck, in a dog and in a rabbit. These animals presented neither lachrymation, nor salivation, nor œdema. I then laid a ligature around the femoral veins of some dogs, immediately below the femoral ring. No œdema showed itself, neither on the day of operation, nor on the days following. These first results agree with those HODGSON observed in man. I carried the ligature around the inferior vena cava. No œdema was produced. I then thought of favoring the production of the dropsy by paralyzing the vasomotor nerves. To attain this end, I availed myself of the knowledge we possess on the distribution of the vasomotor nerves since the discovery of M. CL. BERNARD. I cut the sciatic nerve of one side only, on a dog who had undergone ligature of the vena cava. On this side a considerable œdema supervened, while the other lower extremity remained free. This experiment was repeated three times, and each time gave rise to the same phenomena."

From the facts related in this note, M. R. thinks he may conclude that (in the dog) the ligature of veins does not cause œdema, but that after obliteration of the veins, dropsy is caused by section of the remoter nerves. The same is probably true of man, and, henceforth, it is clear that these experiments will gain great importance whenever physicians shall apply them to the clinical study of dropsies.

G. B.

3. *On the Development of Epithelial Cancer.* By Dr. A. CLASSEN, Rostock.

[*Virchow's Archiv.* Bd. L. Heft 1, p. 56; April, 1870.]

In connection with a case of cancrroid of the cornea and sclera, and the description of the pathological alterations found in it. Dr. CLASSEN discusses the theory of its development. From his preparations he concludes :

1. That the growth of a carcinoma is preceded by an abundant development of blood vessels in the vicinity ;
2. That the development of the cancer cells takes its rise from the blood vessels ;
3. That the further fate of the cells depends essentially on the the conditions to which they are exposed on the part of their surroundings, and not, or at least not essentially, on their parentage ;
4. That the destructive effect of a carcinoma is primarily based on the fact that the cells, by their growth or swelling, rend the tissues asunder, in the same manner as we blast a skull by peas soaked in water.

The length of the arguments adduced for these propositions precludes our following the author throughout. In the course of his argumentation, he combats the theory of THIERSCH, that the primary epithelial cancer takes origin only in epithelial formations, (formations derived from the external blastodermic layer).

He represents the anatomical process in the development of a primary epithelial cancer thus :

On a hyperæmic basis, (one which, commonly, has been hyperæmic for years), covered with a layer of epithelium or epidermis, there appear in great numbers small round cells which most probably issue from the blood vessels, certainly at first follow the course of the vessels, but soon separate the meshes of the connective tissue in little heaps, at the same time developing into epithelial formations. At the same time, the overlying covering

with its glandular processes increases and thickens by the addition of cells which probably have a common origin with the former round cells, and penetrate the limiting layer of the connective tissue in suitable, yielding, localities. The process progresses by a continual new-formation of vessels with very slight formation of connective tissue, but continued loosening of the mother structures, the remains of which often resemble papillary excrescences, whose papillæ are not, however, provided with regular loops of blood vessels. The stagnation of the nutritive fluid and the retarded absorption explain the hyaline degeneration and cornification of the cells, the necrosis and ulceration. But it is not yet known why the stagnation of the blood is so great and absorption so much retarded; why, besides the vessels, so much less connective tissue is formed, than in inflammation; why not so much fluid is exuded as to wash away the cells, so that the latter gain time, in their slow migration, to grow out into large epithelial forms and disrupt their surroundings.

G. B.

4. *The Cirroid Neuroma.* By Dr. PAUL BRUNS, Tübingen.

[*Virchow's Archiv*, L, 1, p. 80; April, 1870].

The author describes two cases of a peculiar neuroma that occurred in the surgical clinic of his father, Prof. V. v. BRUNS, in Tübingen, and for which he proposes the name of Cirroid Neuroma [*Rankenneurom*]. (VERNEUIL had named it *Neuroma plexiforme*.)

The following is the author's own brief résumé of the description of the case observed by himself: We have before us a congenital tumor whose essential constituent is a number of cords arranged like creepers, with uncertain connection with the nerve trunks passing to the vicinity of the tumor. The cords are imbedded in a soft interstitial tissue which extends between the external skin and the fascia of the aural and temporal regions, and hence originated from a metamorphosis of the subcutaneous areolar tissue.

On making a transverse section through such cords still imbedded in the enveloping masses, the naked eye discovers a sharp limit between both parts, which becomes still more marked on preservation in alcohol or hardening in chromic acid, and in fine sections presents itself as a slit even; because, under the influence

of these agents, the soft, in part mucous, interstitial tissue contracts strongly, coagulates partially, and thus retracts from the borders of the cords. On the cords themselves, the section appears similar to that of a fibroma, and in thin sections there becomes apparent even to the unaided eye a concentric stratification on the periphery, whose gloss and transparency contrasts against the opaque milk-white centre.

For the detailed, and especially the microscopical, description, with its beautiful illustrations, we must refer to the paper itself.

The other case had occurred previous to the author's connection with the clinic, and had been described by LOTZBECK (*Die angeborenen Geschwülste der hinteren Kreuzbeingegend*. München, 1858). The author refers to four other cases occurring in literature, viz.: DEPAUL and VERNEUIL (*Bulletin de la Société anatomique de Paris*, 1857, p. 25.); VERNEUIL (*Arch. gén.*, V. Sér., T. XXVIII, 1861, p. 550); BILLROTH (*Archiv f. klin. Chirurgie*, 1863, IV p. 547); *id. (ibid.)*, 1869, XI, p. 232).

In a postscript the author relates two cases of a kindred form of tumor which he styles *Neuroma elephantiasticum*, and which suggest that "imperceptible transitions exist between simple congenital elephantiasis and elephantiasis neuromatodes or neuroma eleph. The first case is described as a cirroid neuroma of the temporal region coexisting with general neuromatosis, especially multiple neuromata of both pneumogastric nerves, one of which attained to nearly the size of two fists.

G. B.

5. *On the Coexistence of Aneurismal Lesions in the Retina with Aneurisms of the Small Arteries of the Brain.* By M. HENRY LIONVILLE.

[*Archives gén. de méd.*, April 1870, p. 503.]

M. LIONVILLE communicated a note on this subject to the *Académie des sciences*. The coexistence of aneurisms of the retina with those of the brain, which the author had described in 1868, has again occurred in a case observed in connection with M. CHARCOT. A female, aged 72 years, died at the Salpêtrière after several small apoplectiform attacks. The autopsy revealed innumerable miliary aneurisms existing in the cerebrum, cerebellum, the protuberances and meninges.

But besides, and especially, there existed aneurisms in both

retinæ. The latter lesions of vessels in the fundus of the eye corresponded to small hæmorrhagic infiltrations in the retina. The microscopical examination of one of these retinæ confirmed the aneurismal structure of these lesions.

G. B.

6. *Extensive Ossification of Ascending Aorta.* By Dr. J. FORD THOMPSON.

[Proc. Clinico-Path. Soc. Washington; in *Amer. Jour. Med. Sc.*, April, 1870.]

W. M., soldier, æt. 29, admitted to Providence Hospital January 6, 1869. Had anasarca, and suffered with intense dyspnœa; pulse frequent and feeble. He was unable to lie down, and the difficulty of respiration was truly distressing. Aortic valvular disease was at once diagnosed by the attending and house physicians, with effusion into pericardium.

His previous history developed that he had had several attacks of rheumatism, the last of which occurred early the previous summer. He first became conscious of heart trouble in August, 1868, by frequent attacks of palpitation and shortness of breath. In September he was examined by the surgeon of the post (Fort Washington), and the disease recognized. About the same time swelling of the lower extremities made its appearance. He was placed in the hospital at the fort, where he remained until the day of his admission to Providence Hospital. Could learn nothing of the treatment, but he had been growing worse very rapidly, and was sent to the city for more comfortable quarters.

When admitted, digitalis, squills and calomel were ordered; only a few doses of which, however, were taken, when he was put upon acetate of potash and stimulants, the latter treatment being continued until his death, which took place January 9, the third day after admission.

Autopsy January 10.—Thoracic viscera only examined. Large amount of serum in right pleura, but no evidence of inflammation. Lungs healthy; considerable effusion into pericardium.

Description of Specimen.—Heart nearly twice its natural size; both ventricles and auricles much dilated, the left ventricle in particular; mitral valve natural; aortic valves ossified at the tips, but much less diseased than was expected.

The ossification beyond the valves extends about two and a half inches along the ascending aorta, and forms nearly a complete lining to the vessel, *entirely closing the left coronary artery.*

Dr. Thompson considered the fact of the closure of the coronary artery to be of especial interest, as in his opinion it was the immediate cause of death, and of the very distressing symptoms constantly experienced. This closure must have occurred late in the disease, otherwise there would have been atrophy of the organ, instead of hypertrophy—that is, if it were possible for the heart to perform its functions for a sufficient length of time under such circumstances to allow this change to take place.

Editorial.

METEOROLOGICAL OBSERVATIONS AT ST. LOUIS, MO.

By A. WISLIZENUS, M.D.

The following observations of daily temperature in St. Louis are made with a MAXIMUM and MINIMUM thermometer (of Green, N. Y.). The daily minimum occurs generally in the night, the maximum about 3 P. M. The monthly mean of the daily minima and maxima, added and divided by 2, gives a quite reliable mean of the monthly temperature.

THERMOMETER FAHRENHEIT, 1870.

MAY.			JUNE.		
Day of Month.	Minimum.	Maximum.	Day of Month.	Minimum.	Maximum.
1	53.5	80.0	1	63.5	83.5
2	57.0	85.0	2	64.0	88.5
3	61.5	91.5	3	70.0	84.0
4	61.5	88.0	4	70.0	91.5
5	61.0	86.5	5	63.5	85.5
6	52.5	62.0	6	62.5	87.0
7	48.5	58.5	7	57.5	76.5
8	48.5	71.5	8	54.0	67.0
9	54.0	71.0	9	52.0	71.0
10	49.5	67.0	10	50.5	66.0
11	43.5	70.0	11	49.5	71.0
12	46.0	63.5	12	52.0	71.0
13	46.5	75.0	13	51.5	72.5
14	51.5	82.0	14	60.0	84.0
15	57.0	86.5	15	64.5	86.0
16	61.0	87.5	16	65.5	78.0
17	61.5	88.5	17	63.0	80.5
18	65.0	88.0	18	62.0	88.0
19	69.0	86.5	19	67.0	91.5
20	68.0	89.0	20	67.0	94.0
21	67.0	96.0	21	68.0	92.0
22	68.5	96.0	22	68.5	92.5
23	63.5	80.0	23	70.5	96.5
24	62.0	80.5	24	75.0	94.0
25	58.0	78.5	25	72.5	97.0
26	55.0	81.5	26	71.0	95.0
27	55.5	72.5	27	70.0	93.0
28	58.5	79.5	28	72.0	95.0
29	55.5	86.0	29	76.0	98.0
30	67.0	87.0	30	76.0	100.0
31	68.0	83.5			
Means....	57.7	80.6	Means....	64.4	85.7
Monthly	Mean...69.1		Monthly	Mean...75.0	

REPORT OF ATMOSPHERIC ELECTRICITY, TEMPERATURE, AND HUMIDITY.

BASED ON DAILY OBSERVATIONS AT 6, 9, 12, 3, 6, AND 9 O'CLOCK, FROM MORNING TILL NIGHT, AT ST. LOUIS, MO.

1.—Monthly Mean of Positive Atmospheric Electricity.

Year Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.	Mean in 10 years.	No. of Thunder Storms.	Prevailing Winds.
1870. May	5.6	6.3	4.8	4.0	4.9	4.3	5.0	4.0	5	sw. se. s.
1870. June	1.9	1.1	1.1	1.7	1.3	0.8	1.3	2.4	4	sw.

2.—Monthly Mean of Temperature, Fahrenheit.

Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.
1870.	May	61.4	71.2	77.9	77.8	75.3	67.8	71.9
1870.	June	67.6	76.6	80.5	81.7	78.4	72.5	76.2

3.—Monthly Mean of Relative Humidity.

1870.	May	77.8	59.0	46.7	46.8	53.5	71.0	59.1
1870.	June	78.7	61.6	51.9	49.7	58.8	75.8	62.7

The mean temperature of May was 69.1; that of June 75.0. The mean average is 66.3 and 74.4. Both months, but especially May, were therefore warmer than usual. June, in its first half, was cold and bleak, but in the second half it daily grew warmer, and during the last twelve days decidedly hot, the thermometer ranging every afternoon between 90 and 100 degrees, and on the last of June reaching even 100 degrees. Both months were rather dry. The average of rain-fall in May is 4.94 inches, and that of June—generally the wettest month in the year—is 5.66. Instead of such profuse rains, May gave us this year only 1.71 and June 1.20 inches of rain. Other parts of the State, even in our immediate neighborhood, were more favored in that respect. Thus Mr. FENDLER, for instance, reports from Allenton, on the Pacific railroad, in St. Louis county, 4.88 inches of rain for June. Rain in this season is generally connected with thunder-storms, of which we had nine in the two months, but all of them light, and sometimes without a drop of rain. If I am not greatly mistaken, the same has happened for several years in more or less degree, and it occurred to me that the extensive network of telegraphic wires stretching over the whole city above the roofs of houses might probably, by induction, prevent any large accumulation of electricity, and have something to do with the less intensity of thunder-storms, and less rains. The subject deserves, at any rate, some consideration.

The health of the city was quite satisfactory in May and the first half of June, but in the latter part of June the increased and continued dry heat produced our usual summer diseases—bilious diarrheas and fevers. Sunstrokes were common, and some cases of sporadic cholera also occurred.

† PROFESSOR CHARLES A. POPE. †

The medical profession of the Mississippi Valley, and of St. Louis particularly, are mourning the untimely end of their great Surgeon. On Tuesday last the telegraphic cable transmitted the announcement of the sudden and sad death of Dr. POPE, in Paris, France. The skillful surgeon, the refined gentleman, the true man, the fast friend of the young disciple of science, the enthusiastic and popular teacher of surgery, whom the medical men of this city were proud to acknowledge as their head, is no more.

In a meeting of the medical profession of St. Louis, the deep feeling of sorrow over this great loss and bereavement called forth numerous tributes of respect from the lips of his surviving colleagues, and was formally expressed in the following resolutions:

WHEREAS, The medical profession of St. Louis has learned that one of its most distinguished members, Dr. CHARLES A. POPE, suddenly expired on the 5th inst., at Paris: Be it

Resolved, That the sad news has been received with deep regret and sorrow by all its members.

Resolved, That the excellencies of Dr. Pope were many, his faults but few.

Resolved, That he occupied a position in the first rank of the surgeons of his country.

Resolved, That the loss to the profession of which he was an ornament, and to society in general to which his many virtues endeared him, is a loss which will be long deplored.

Resolved, That his memory will be cherished by a numerous throng of all classes of his countrymen.

Resolved, That this meeting tenders to the bereaved wife and children of Dr. Pope its sympathy and condolence.

Resolved, That these resolutions be published in the daily papers and the medical journals of St. Louis, and a copy of them be sent to the family of the deceased.

THE SAINT LOUIS

Medical and Surgical Journal.

SEPTEMBER 10, 1870.

Original Communications.

*PHYSIOLOGICAL EXPERIMENTS ON THE FUNCTIONS
OF THE MEMBRANA TYMPANI AND OSSICULA
OF THE EAR IN HEALTH AND DISEASE.*

A Lecture delivered by Dr. ADAM POLITZER at the meeting of the Medical Society held at Vienna, April 1, 1870. Reported for the *St. Louis Medical and Surgical Journal* by his Assistant, Dr. EDWIN VAN MILLINGEN.

Experiments on an expanded artificial membrane show that the membrane vibrates at most when the sounds transmitted to it are approaching the tone appropriate to the membrane.

The membrana tympani, on the contrary, possesses the quality of receiving and transmitting high and deep sounds, not only in immediate succession, but also coetaneously. Our ear may be capable of distinguishing the tones of all the different instruments in an orchestra. The minutest sounds may all be simultaneously followed, and the least discord in the whole detected.

Prof. HELMHOLTZ has mathematically proved that curved membranes possess a greater power of resonance than flat

membranes. This is proved by experiment.* HELMHOLTZ attributes the power of resonance of the membrana tympani to the convexity of the radiate lamina towards the external meatus. POLITZER believes that this is one of the causes; but it is also experimentally proved that the resounding power remains the same when the membrane is convex toward the sound it receives, or when it is concave to it. POLITZER's opinion is that an important factor for the simultaneous reception of various tones is the different degree of tension of the single parts of the membrana tympani caused by its convexity.

The lecturer proved by the graphic method that the ossicula do not move through single molecular vibration, but by movement *en masse*.

The proportional vibration of each ossicle essentially depends on the mechanism of the articulations. As early as 1862 POLITZER proved that by the outward movement of the tympanum the malleus is drawn outwards, the incus not following that movement. HELMHOLTZ confirms this statement, and compares the articulation of the malleus and incus to the ratchet arrangement of a watch key. During an inward movement, the ratchet tooth of the malleus fixes itself exactly into that of the incus, and thus the incus is moved. During an outward movement the ratchet tooth of the malleus becomes free from that of the incus, and thus the malleus alone moves. It follows then, (as POLITZER proved in 1868, in a lecture demonstrating that the axes of the ossicula are not fixed, but movable†), that the movements of the malleus are much greater than those of

* Dr. POLITZER demonstrated this before the Society on an apparatus made by himself, and consisting of a large artificial membrana tympani, with the malleus attached to it. The membrane is fixed at the end of a closed tube, with the exception of an opening at the extremity opposite the membrane, for the purpose of fixing an otoscope. Tuning forks of various tones are held before the membrane. On drawing the malleus backwards, and thus increasing the curve of the membrane, the sound through the otoscope is heard much louder than when the membrane is relaxed.

† *Wochenblatt der Gesellschaft der Ärzte*, Jan. 8, 1868.

the incus or of the stapes. This was confirmed a year later by SCHMIEDEKAM, and not long ago Dr. BUCK, of New York, has proved that the movements of the stapes are four times weaker than those of the malleus, and twice weaker than those of the incus. The method which Dr. BUCK employed is after LISSAYOU'S principle, which consists in examining the vibrations of a body by optical instruments. Minute particles of amylum were placed by him on the ossicula, and the vibrations measured by means of a microscope and a micrometer.

POLITZER modified this method somewhat, and employed it in making a series of experiments on the human ear, the results of which are as follows :

First. The vibrations of the ossicles produced by sounds of equal intensity transmitted to the membrana tympani are more powerful when high tones reach the membrane ; they are less when grave tones are transmitted to it ; in very high tones the intensity of the vibrations diminishes.

Second. If words are uttered into the external meatus through a speaking trumpet, the ossicles vibrate, and the number of vibrations correspond to the number of vowels in the word.

Third. If some part of the membrana tympani be burdened with little wax balls or any other such body, the intensity of the ossicular vibrations is somewhat diminished, but when the same weight is placed on the malleus, or on any other of the ossicles, their vibrations are considerably reduced.

Fourth. The ossicula being burdened in such a manner, it will be noticed that high tones transmitted to the membrane produce comparatively greater vibrations of the ossicula than deep tones ; and likewise words uttered produce more vibrations than musical sounds. These results accord with observations made on diseases of the ear. Changes in the membrana tympani (calcareous deposits, cicatrices), are less injurious to the power of hearing than other pathological formations, such as adhesion, or anchy-

losis of the ossicula, which disturb their vibrations. It is also manifest that in such cases high tones are perceived much better than deep tones, and that difficulty in understanding speech is observed when musical tones are easily perceived.

Fifth. In artificially perforating the membrana tympani the vibrations of the malleus are considerably reduced. As soon, however, as an artificial membrane is brought in contact with the long process of the malleus, the vibrations again increase.

Sixth. The clattering noise heard in the tympanic cavity when strong sounds are transmitted to the membrana tympani (in the cadaver), and to which HELMHOLTZ has already drawn attention, is not produced, as he says, by the concussion of the malleus and incus articulation, but by the buzzing of the membrana tympani and the ligaments of the ossicula. This POLITZER proved, by showing on the cadaver that the buzzing sound is heard even when the articulation of the malleus and incus is artificially ankylosed.

ON FRACTURES.*

By JOHN T. HODGEN, M.D., Professor of Anatomy. &c., Saint Louis Medical College.

THE INDICATIONS FOR TREATMENT.—Each individual case of fracture may require peculiar modifications of treatment, indicated by a variety of causes, viz. :—1st. Peculiarities of organization. 2d. Age. 3d. Site of fracture. 4th. Direction and complexity of the fracture. 5th. The complication of other parts than the fractured bone.

It is obvious that no one can by any possibility give in detail the proper indications for the treatment of any case of fracture not under actual observation. Hence arises the

* Continued from page 332.

necessity of confining ourselves to general principles, and of leaving details to be determined by the surgeon in actual attendance.

The original displacement of fractures depends on one or both of two causes: 1st, the external force that may have caused the fracture; 2d, the action of muscles on the bone fractured.

So soon as the force that caused the fracture and the displacement ceases to act, the displaced parts are easily replaced, provided another force does not resist reduction, and the fragments will retain their proper relation until some power displaces them; so that, if only the above named cause of displacement were all we had to contend with, nothing would be required except reduction and perfect rest of the patient.

But displacements are caused and maintained by muscular action, and this does not cease so immediately; and if it should for a time, the very effort at readjustment calls it into action again. So that no rational or successful plan can be adopted in the reduction of a fracture or its maintenance, except one that will overcome muscular contraction. And any plan that will perfectly accomplish this, will invariably succeed.

In most cases extension will accomplish this end, but unfortunately it cannot always be directly applied, though in most cases it can either directly or indirectly be used.

As an illustration of the method of indirect extension in transverse fractures of the bones of the leg, we apply the plaster dressing and depend upon the bone itself, as an extending agent, to counteract the displacing power of the muscles. One end fits fairly on the other and the muscles cannot produce displacement. Now the plaster splints, it matters not how well applied, cannot prevent displacement in an oblique fracture, if the muscles are brought into action. The oblique surfaces glide over each other, however tightly the skin may be fixed to the plaster covering; the areolar tissue beneath it, by allowing the skin to move

over the muscles, will allow the bones to overlap, and the more perfectly the plaster dressing is applied in such a case the more certainly will the soft parts opposite the pointed ends of the bones be injured; and that, too, to an extent that must require removal of all lateral supports, and possibly even the amputation of the limb. Hence it occurs that surgeons find great difficulty in preventing over-riding in certain oblique fractures of the upper part of the tibia. It is not because of the lifting of the upper fragment by the muscles attached to the tubercle of the tibia by the ligamentum patellæ alone, but the displacement is due principally to the action of the strong muscles of the calf of the leg. If their power of contraction is overcome there can be no displacement. The same reasoning will apply to any other oblique fracture, for there is always a tendency to over-riding. And the greater the amount of soft tissues intervening between the lateral supports and the fractured bone the greater will be the facility with which displacement will take place.

It matters not how violently surgeons may deny the fact, that every fracture, however successfully treated by lateral support, is not treated by extension. The very manner by which they reduce a fracture and maintain its reduction until lateral supports are applied, indicates that extension is the means to be used. The bones of the forearm are broken, the surgeon makes extension, applies the lateral supports—but these lateral supports, held in place by the bandage, can only control muscular contraction by making the bones serve as extending agents through coöperation of the fractured ends.

Lateral supports or other compressing agents can not be applied to a fracture without impeding the circulation, and thus retarding reparation in the fracture and insuring atrophy of all the parts thus compressed. Hence, whenever these lateral supports can be dispensed with, they should not be used in the treatment of fractures. Muscular extension being the fundamental principle that underlies all

successful plans of treatment, it becomes an interesting question how this extension may best be made and maintained.

The long splint of *PHYSIC*, so *long* used by the profession in the treatment of fractures of the femur, is based purely upon this principle, and, as usually applied, accomplishes its purpose only for a few minutes after its application. For the materials used for making extension and counter-extension are more or less yielding; and so soon as the extending force used by the assistant in reduction is relaxed, the muscles by their tonic power increase the tension of the yielding extending agents, and these allow the fragments (if the fracture be oblique) to glide past each other; and although the surgeon may fancy the fractured limb as long as the other, it is really though imperceptibly shorter. At the end of twenty-four hours the surgeon is forced to tighten his extending bands, or, in other words, to set the fracture again. And this is done again and again, day after day, until the bone becomes so firm that it cannot be extended. Thus showing conclusively, as is shown in the case of fractured ribs, that repeated movement of fractures does not prevent union.

The agent required to maintain the continuous extension may be an elastic strap, or, what is less variable and more under control as to amount of power employed, gravity. To *HILDANUS* has been given the credit of first using the weight in the treatment of fractures, but it has been revised and systematized by *Dr. BUCK*. He uses a weight attached to a cord and dropped over a pulley. In the treatment of fractures of the thigh, *Dr. SMITH*, of Baltimore, uses also gravity, but substitutes the weight of the limb and succeeds admirably in the treatment of such fractures. But neither the weight and pulley of *BUCK*, nor the weight of the body as used by *Dr. SMITH*, can be applied conveniently to all cases of fracture of the limbs. Thus it would be cruel to require a patient having only a fracture of the forearm to remain in bed, so that weight might be used to maintain

extension, when there are other and very efficient means by which the bones may be kept in position without the injury to the general health that would result from such confinement.

The means of making extension must be varied, and this variation must be determined by the site of fracture, the character of fracture, the limb fractured. Thus in cases of fracture of the thigh, adhesive plasters applied after the manner recommended by Dr. WALLACE, may be used, or the gaiter, or the simple roller applied as a gaiter. In fracture of the leg, involving the lower end of the bones, adhesive strips cannot gain sufficient surface for attachment, and the gaiter or some modification of it may be required; or if the fracture be transverse, the simple lateral supports keeping the ends of the bones in apposition may be the most correct, comfortable and certain means of maintaining extension.

The extreme folly of urging the use of a particular apparatus in the treatment of any fracture of any particular bone is too apparent to require a remark in refutation. To say that the plaster dressing (good as it is in many) is best in any case of fracture of the leg, or arm, or thigh, is carrying a special means into too general use. So too of the long splint of LISTON or PHYSIC, the double inclined plane of BELL, or the anterior splint of SMITH; but all are good, and each has its peculiar advantages. To keep a patient four or six weeks on his back that the weight of the shoulder may maintain a fractured clavicle in position, is paying too much (in the comfort and health of the patient) for the support of a particular plan of treatment.

There is no department in which surgeons blunder more than in the use of particular means in the treatment of fractures, and the vast majority of bad results in fracture are due to the unwillingness of the surgeon to deviate from the special instructions of the masters in the profession.

Let the surgeon be acquainted with the structures, the functions of the part, know the peculiarities of the indi-

vidual organization. He will then see the indications to be fulfilled, and knowing the various means used for fulfilling those indications, his own ingenuity must select that which will best attain his object. If, embarrassed by the diction of any man, he loses his individuality, he is unworthy of the confidence of those who employ him. But it may be urged that many have not the mechanical skill to select or originate the best possible means to meet a given case. If this be true, we say, those who *can* alone practice surgery; and the same is equally true of medical practice.

*DISLOCATION OF THE THIRD, FOURTH AND FIFTH
CERVICAL VERTEBRÆ,*

*Together with Dislocation of the Humerus, which penetrated through
the Space between the Clavicle and First Rib.**

By THEODOR MEYER, M.D., Belleville, Ill.

January 25, 1869.—Jacob Th., æt. 25, large and well nourished, but of flabby constitution, working in a mill seven miles from here (at Georgetown), fatigued from doing nothing, leaned in the angle formed by a cog-wheel and shaft in motion. To be seized by the coat and rolled up backwards—the engine making one hundred and sixty revolutions a minute—was the work of an instant. The bystanders were compelled to reverse the engine, after it had been arrested, to make extrication possible.

Two hours later I saw the sufferer. The patient was lying upon his back, the head resting on the left cheek, occiput almost touching the right shoulder, chin directed to the left, face turned almost upward, as referred to the axis of the body. The eyes were suffused with blood, fixed, protruding, directing an almost animal stare upon me to the right. The mouth was drawn a little obliquely

* Read before the St. Clair County Medical Society of Illinois. June 2d, 1870.

to the right, the tip of the tongue between the teeth in the right angle of the mouth; speech jerking, interrupted by attempts at swallowing. On the neck, bent forcibly forward, or rather to the left, the larynx formed a considerable projection, while the back of the neck presented a deep arch in the shape of a horse-shoe, with a deep cervical furrow. Into this arch of the neck projected a knoll-like elevation over the clavicle. The distance to the right shoulder was diminished, the latter falling off in a right angle to about four inches; thence in an obtuse angle to the olecranon. The forearm was forcibly flexed, the closed fist resting above the right nipple in the mamillary line. Both axillæ were suggillated to an extreme degree, but not wounded. The left arm lay extended along the body, and the two lower extremities also were extended. No further signs of external injury were visible. Yet the left arm was partially paralyzed, as also the right lower extremity. The left lower extremity, however, was completely paralyzed—without motion or sensation, and cold.

The position of the head and the expression of the face, as well as the palsy of the extremities, immediately pointed to dislocation of one or more cervical vertebræ, with pressure upon the spinal marrow. In fact, the third, fourth and fifth cervical vertebræ were dislocated laterally, and at the same time rotated on their axis to such a degree that the spinous processes occupied a nearly lateral position, that of the fourth vertebra more than those of the third and fifth, so that the three described a lateral arch similar to the thread of a screw. The fourth was also projected forward more strongly. The knoll-like projection into the excavation of the neck, above the clavicle, was the articular head of the humerus pushed through the interval between the clavicle and the first rib. The shortened and angular shoulder terminated in the glenoid cavity of the scapula.

My first task was to render possible the reduction of the cervical vertebræ. I had the patient brought to the sitting posture by means of towels extended under the back of

the patient, myself supporting the head. I then surrendered the latter to an assistant, whom I directed to make gentle traction, following accurately the direction I should give the head. My hands were so applied that the thumb and ball of the left hand were pressing on the left side upon the transverse processes, those of the right hand against the spinous processes, while the other fingers of both hands, extended along the lower jaw, by pressure and traction, with simultaneous rotation of the head, accomplished the reposition.

I felt distinctly—I say *felt*—the re-entrance of the several vertebrae into their normal position. The patient distinctly perceived and *heard* at the same time the slight snapping of the individual vertebrae. It seems irrational to assert that a sound is *felt*, and yet this is the case. The dense envelope of soft parts easily prevents the conduction of a gentle sound, while the concussion connected with the production of the sound is distinctly palpable by the point of the finger, and is perceived without illusion as sound.

The head immediately recovered its proper position and free mobility. Several deep inspirations relieved the previous anxiety of countenance; the expression became free and natural.

The reduction of the arm was more difficult. The assistants available at the time were difficult to instruct, and, to make matters worse, the chloroform was spilled. By lever movements and rotation I had to loosen the head of the humerus and attempt to draw it forth, which was not an easy thing to do, as it hooked fast, now above, now below, and was abetted in its obstinacy by the sufferer himself. More difficult still was the reduction into the articular cavity. Repeated futile attempts brought the head only to the lower margin of the glenoid cavity, but no further, until I led the articular head around the lower margin and back of it; and here was the rupture in the capsule. Reduction was now accomplished without trouble by the method of MOTHE-RUST.

When I saw the patient on the next day the bladder and rectum also proved to be paralyzed. Several days I had to resort to the catheter and to cold injections into the bladder; and the scybala also were removed by the attendants (according to my instructions) by means of a spoon-handle, and subsequent accumulations prevented by the continued use of cold-water injections. All paralytic phenomena disappeared completely and in a short time.

The present case is in every respect remarkable. The luxation of the humerus undoubtedly preceded the dislocation of the vertebræ. The body was rolled up by the coat as firmly as was at all possible; the arms were, in part instinctively for self-protection, in part (and perhaps still more) forcibly by means of the clothes, wound around the shaft, as is proved by the considerable effusion of blood into the axillæ. The cog-wheel, upon which the patient supported himself on his right side, may also have been instrumental in dislocating the humerus and forcing it through the space between the first rib and clavicle. It seems necessary, in order to explain this luxation, to assume two forces acting simultaneously; for else the humerus would rather have slipped by the clavicle than under it. The difficulty in reducing it was great enough to make me fear fracturing one or the other of the bones.

The vertebral dislocation occurred later, and is easily explained by the firm pressure of the shaft upon the back of the neck, the lateral and rotatory deviation by the head being turned aside, most probably in order to save pain; and that a lateral luxation really took place, and not a mere deviation or diastasis, is easily demonstrated by the coexisting rotation of the vertebræ; for in this process it was absolutely necessary that one articular process should leap over the other, and thus produce complete dislocation.

A peculiar phenomenon was the jamming of the tongue between the teeth in the right angle of the mouth, whither it returned, too, after every attempt at speaking; likewise, the jerking speech and the inclination to swallow. Pres-

sure and traction upon the cervical nerves certainly took place; and its connection with the pneumogastric and hypoglossal directed the tip of the tongue towards the angle of the mouth, and caused the jerking attempts at speech and deglutition.

All the other phenomena explain themselves. Complete recovery took place by the 18th of February, 1870. The patient, whom I had an opportunity to see but a few days ago, is enjoying, upon the whole, undisturbed health, except that raising the arm is somewhat difficult, by reason of rupture in the deltoid muscle.

BELLEVILLE, ILL., June, 1870.

EPITHELIAL CANCER IN A GIRL ÆT. FIFTEEN.

Reported by WALTER COLES, M.D., Parkersburg, W. Va.

On Tuesday, June 28th, I was called to examine a girl, E— C—, æt. 15, with an obstinate sore on the great toe of the right foot. I found the patient in apparently a fair state of health; not more pallid than girls often are at her age. She was tall, well developed, with fair skin, blue eyes and light hair, and of much precocity and vivacity of manner. On the outside of the large right toe was a perfectly circular, *horny* looking growth, a little over an inch in diameter, rather dry in appearance, somewhat scooped out in the center, and with elevated and indurated edges. The disease was of three months' standing, although for nearly a year previous there had been shooting pains through the toe at intervals of a few days. The diseased growth had been several times pared away with a knife, and caustics applied. The paring caused free hæmorrhage, and the caustics did no good, the horny excrescence resuming its former proportions within a few days. The local manifestations first appeared on the *side* of the toe, but soon spread upwards, involving the *nail* in

like manner with the other tissues. In short, the whole appearance of the lesion pointed unmistakably to *epithelial cancer*. Several medical gentlemen who saw the case concurring in my opinion, I amputated the toe at the first joint July 1st.

This case presents points of interest—*first*, in the youth of the patient, and *second*, in the fact that there is a very clear history of hereditary tendency to cancer in the family. PAGET remarks (*Surgical Pathology*, p. 624): "A few cases are on record, transmitted from book to book, in which what were epithelial cancers occurred before adult life." This fact seems to be borne out by statistics, and also that the tendency to the development of this form of malignant growth increases with the advance of age. In the case before us the patient's half great-uncle on the maternal side died of epithelial cancer of the cheek at an advanced age; also an aunt on the maternal side, of malignant disease of the uterus, the precise nature of which I am unable to state.

Whilst on this subject I will merely state that I have recently seen a brother and sister suffering from malignant disease. The sister was operated on for cancer of the breast at about thirty years of age, and remained well for twenty-six years, when she died of encephaloid cancer of the vagina and liver. The case is reported in *Amer. Journal of the Med. Sciences*, April, 1870. Within a month the brother of this lady, æt. 78, has consulted me for epithelial cancer of the lip.

ON CANCRUM ORIS.

By W. S. EDGAR, M.D., St. Louis, Mo.

There is no patient the general practitioner is more solicitous or anxious about than the subject of *gangrene of the mouth*. The deformity from the loss of a portion of

the face, or solid support of the face, is so terrible a calamity as to be counted little better than death itself. We apprehend the current impression that these cases are confined to hospitals for children, or indeed to the crowded population in the midst of cities, is erroneous; however this may be in Europe, it is not the case in this country. It is probably true, however, that the authors of our literature on this subject have only met with it in hospitals and among the destitute of large cities, for the good reason that they have not resided in unhealthy, malarial regions to know whether it did occur there or not. The affection we refer to is mostly confined to the period of infancy or childhood, but exceptional cases occur later in life.

The pathological condition which immediately precedes the occurrence of gangrene of the gums or cheeks is incidental either to some clearly defined disease, as scarlatina, measles or whooping cough, or to some less defined cause of debility, some septic agent derived from the atmosphere impairing the vital powers by deranging the nutritive processes.

We repeat, it is incidental to certain constitutional conditions which obtain as sequelæ to specific diseases common to childhood; or it may become endemic from atmospheric causes, rendering adults liable who happen to be the subjects of anæmia and irritative fever, whether from the improper use of mercury or other causes. Hence *cancrum oris* cannot properly be denominated a disease, although spoken of as such, being rather a symptom, a phenomenon, an incident, liable to occur after many diseases inducing a particular cachexy. If the precise septic agent most productive of this rapid disintegration of the tissues of the mouth is not known, it is in abundant observation that bad regimen, exhausting disease, or malarial poisoning favor its occurrence.

Mercury, injudiciously administered, sets up a constitutional irritation favorable to this result, while any agent or condition that materially exalts the circulation in the face

and gums may become the *local* exciting cause; hence, *dentition* may intensify the ulceration already begun by constitutional causes. As the inflammatory exudation dies, chemical changes precipitate disintegration. The vitality of the system being low, but feeble resistance is made by contiguous textures; thus material portions of integument are lost. After such irreparable damage and deformity fortunately the greater number die.

The attempt to diagnose three or four varieties of this affection we think too much refinement for practical utility. The cases which have fallen under our observation have commenced with symptoms of stomatitis, with impaired appetite and general emaciation. If accompanied with difficult or delayed dentition, the gums were first attacked with gangrene; otherwise an indolent ulcer or small tumor on the inner surface of the cheek or angles of the mouth first attracted attention, followed by swelling of the face and inability to open the mouth without pain; the flow of saliva *diminished* (in the worst cases), and breath fœtid, pain or prickling in the gums, with spots of a dirty slate or ash color; or the first suspicious point may be marked by a circumscribed red spot on the inner surface of the cheek, which gradually augments and finally becomes gangrenous.

As early as 1844 my attention was called particularly to this subject in the "American Bottom," opposite this city, after the great flood of that year, which swept over that entire district, extending from a little below Alton one hundred miles south, destroying both animal and vegetable life, except on a few mounds, the dead bodies lodging in the thick tangle of undergrowth at various points. The decomposition of animal and vegetable matter upon this bottom land, after the water receded during the heat of the following August and September, developed disease in a more malignant form than usual even in this region, and during that autumn we saw a number of cases of cancrum oris in children under five years, and three well defined cases of older persons—one in a lad of twelve years, and

two in nursing mothers, beginning with the ordinary symptoms of stomatitis materna.

In the case of the lad it was barely possible that mercury could have had to do with the development of the disease. The attending physician averred not. In this case the lower teeth, alveoli, and a part of the lower jaw bone were lost, leaving an opening through the chin to the under surface of the tongue, through which the saliva flowed from the mouth.

In one of the other cases (a nursing mother), which I first saw after gangrene had destroyed a considerable portion of one cheek, spreading from the angle of the mouth, the destructive process was arrested, and the patient recovered, much disfigured. The third case lost teeth and alveoli extensively, but escaped perforation of the cheek.

I have seen a number of these cases where the gangrene was not confined to the mouth and face, but attacked the extremities several days before the fatal termination. In one case both feet were attacked, extending to the legs above the ankles. Dr. SMITH, in his recent work on diseases of children, speaks of the hands, ears and scalp being involved in some cases.

All are aware of the fact that a few years ago, when the doctor armed himself with the lancet, calomel and tart. emetic, and brought the trio to bear on almost every case of fever, that gangrene of the mouth was much more common as the result of ptyalism and exhaustion than it is at the present time.

If we are so unfortunate as to have a case of cancrum oris, it is a great comfort to be able to attest that no mercurial has been prescribed. I have referred to cases only where mercury had not been prescribed, so far as could be ascertained at the time, but where some fault of nutrition, together with some septic agent in the atmosphere, seemed to originate the constitutional condition essential to the occurrence of the gangrene.

What has particularly attracted my attention is the appa-

rent identity of the condition, whether it occurs in the child or adult—that it is not confined to children from two to six or ten years (although of much more common occurrence at this tender age), but may, under certain circumstances, occur in the adult, particularly during lactation.

One of the septic agents has been pretty satisfactorily traced to the decomposition of animal and vegetable matters in infirmaries, crowded, filthy apartments in the midst of the city, and intensely infected regions of country, as shown above to have been the condition of the American Bottom in 1844.

I have alluded to a particular year when a specific cause existed for the constitutional contamination, culminating in cancrum oris and other malignant processes inimical to life. In Dr. BENNETT'S recent *Practice of Medicine*, reference will be found to a similar occurrence in the city of Edinburgh during the year 1836, when "gangrenous stomatitis was attended with rapid and extensive sloughing of the lips and face; also the genitals of young children; and this was not confined to the infirmary, but throughout the city, neither youths nor adults being exempt. Indeed, all kinds of sores and wounds were liable to seizure with gangrene." He further states that, after the most careful investigation, it was ascribed to some septic agent in the atmosphere.

I invite attention to the prophylactic treatment as all important in these cases. When small points of ulceration are discovered on the gums and inner surface of the lips and cheeks, and the face or gums begin to swell, and the mucous membrane becomes puffy and shining around the ulcers, the danger is imminent, and the patient should at once be put on appropriate treatment—nutritious diet, tonics, with change of air where practicable. Among the ferruginous preparations the liq. ferri iodidi has my preference in these cases, both for children or adults. In ordinary cases of stomatitis materna we have been particularly gratified with its effects. A generous diet, into which beef

extract and milk enter largely, should be advised. In case the pain and swelling of the mouth or want of appetite interfere with its reception into the stomach, it should be injected into the rectum every six or eight hours. The syrup of iodide of iron should be given alternately with the citrate of iron and quinine, particularly in malarial regions.

The local treatment is no less important—thorough cleansing of the ulcers and mouth twice a day with the nebuliser, using a weak solution of the chloride of sodium or chlorate of potassa; also the permanganate of potassa to correct the offensive odor of the mouth and stimulate healthy granulation. If any escharotic is indicated, a strong solution of sulph. of copper—xxx gr. to the oz. of water—or paste of permang. of potassa* we prefer to the mineral acids, as less likely to extend beyond the point desired, and less painful. The frequent use of the spray instrument is a great comfort to our patients by cleansing the mouth and removing the offensive odor which may further contaminate the system. When the teeth can be but slightly separated the spray can enter and flow back into a vessel held for its reception. In this way the mouth can be washed with little or no pain, avoiding the prolonged irritation in young children, and the exhaustion consequent thereon.

*SYNOVITIS OF THE HIP-JOINT; HÆMORRHAGIC
DIATHESIS;*

Causative Relation of the Latter to the Former.

By A. J. STEELE, M.D., Prof. of Military and Minor Surgery, etc., St.
Louis College of Physicians and Surgeons.

Several months since, Prof. BOISLINIERE turned over to me a male child, æt. 5, suffering with trouble in the left hip, as indicated by the following symptoms: Thigh

* Any quantity rubbed up with gum water to the consistence of a thick paste, applied with a brush.

slightly flexed; knee advanced; foot pointing forwards; limb apparently lengthened; appreciable fullness in groin, and obscure fluctuation behind the trochanter; under the glutei, buttock flattened; gluteal fold less marked, and lower than the opposite; upper end of the internatal crease slightly deflected to the affected side; moderate increase of heat around the joint. Patient complained of more or less constant pain on the inner side of thigh, passing down to the knee, and pain was elicited on making passive movements of the joint, and from blows on the trochanter. I found the little patient feverish, without appetite, tongue coated, bowels constipated, restless at night, with occasional cries; a fairly developed child of a nervous temperament, with a wax-like skin, wanting the ruddy color of health. A bluish-black ecchymosis, as large as the palm of the hand, was present over the left chest, and other smaller ones on the limbs.

He had been active in his sports up to a month previous to my seeing him, at which time he received a severe fall on the stairs. After that he limped slightly, and made occasional complaints of pain, until a week before he was placed under my care, when the symptoms increased in severity, and became as above described. He was one of a large and healthy family, living in a salubrious part of the city, and surrounded with the comforts of life; had from birth been considered a delicate child, though he had never suffered from organic derangement or other sickness. When eight months of age, having trouble in teething, his gums were lanced. Immediately bleeding supervened, and continued excessive and uncontrolled until he had become greatly exhausted. At several other times during the three years following he had severe hæmorrhages, months intervening between the attacks, always from the mouth, and resulting apparently from laceration of the tongue and buccal mucous surface. On one occasion the united efforts of Drs. POPE and BOISLINIERE did not arrest the flow, though the actual cautery and other resources of

our art were brought into requisition, until the little patient had become greatly anæmiated, when the bleeding stopped spontaneously. He had always been subject to purpuric spots of different sizes, on various portions of the body and limbs, resulting from slight bruises.

Treatment:—Applied a large, well-padded sole-leather splint, passing around the pelvis and down the entire limb, so as to thoroughly immobilize, in an extended position, both the knee and hip-joints, and without also pressing on the trochanter, which would unduly have approximated the joint surfaces; recumbent position on a hard mattress; tonics and good diet.

Progress:—In a few days after this treatment was instituted the most active symptoms had subsided, and at the end of a fortnight the pain had ceased, the soreness nearly disappeared, the swelling diminished, good rest at night was obtained, appetite improved, tongue cleared up, and he became more cheerful in disposition. These changes for the better continued unabated—the splint being kept applied—until the fourth week, when he became feverish and fretful, with headache, disturbed sleep, coated tongue, anorexia—symptoms prodromic of a severe hæmorrhœa, which occurred spontaneously on the fourth day after this unfavorable change. The blood flowed from the posterior naris of the left side, mostly passing backwards and being swallowed, the stomach from time to time rejecting the large quantities of clotted and fluid blood thus accumulated. The oozing continued very constant, notwithstanding the efforts made to arrest it, such as, in turn—the application of ice, injections of liq. ferr. perchlor. dil., ligaturing the limbs, compressing the carotids, the internal administration of ergot, of acid. sulphur., of ol. terebinth., and of acid. gallic. Concentrated food and stimulants were administered by both mouth and rectum, though but small quantities were retained. The epistaxis having continued almost uninterrupted for three days, and his condition becoming exceedingly critical, efforts were made to plug the posterior

naris from behind through the pharynx, both by BELLOCQUE's instrument and a modification thereof, consisting of a small gum-elastic catheter. These efforts were rendered futile from the non-coöperation, and from the resisting struggles of the little patient, who was too depressed to understand the necessity for or the rationale of the operation. Resort was then had, with gratifying result, to the following procedure: A slip of patent lint, half an inch in width by eight inches in length, was looped at one extremity by a stout silk thread, one end of which thread was left long; the lint then being saturated with liq. ferr. persulph. dil. was packed into the nasal cavity—tamponned, in this wise: A probe conveyed the looped end through the anterior naris back to the pharyngeal opening, where it was held and prevented from passing further back by the silk thread, which was kept tense. Another loop or fold of the strip was then taken on the probe and conveyed back to the first, and another and another, until the entire cavity was filled. The thread was then fastened to the cheek by an adhesive strip. In this manner the oozing was arrested, shortly the vomiting ceased, a little nourishment was gradually allowed, his pulse picked up, and thus the attack was over, leaving him greatly prostrated. On the fourth day the nasal plug was carefully removed, without recurrence of the bleeding. From the exhibition of tonics he slowly gained strength, and in six weeks' time was entirely recovered.

The joint trouble had not been aggravated by the hæmorrhœa. The splint was kept applied to the hip, in all, nine weeks; then being removed, motion was allowed. Patient used crutches for a fortnight, after which he was as well as ever.

REMARKS.—There are three points of interest and worthy of attention in the foregoing case: *First*, the joint trouble; *second*, the hæmorrhagic diathesis; *third*, the relation, if any, between those two.

Acute synovitis, with effusion into the articular cavity,

was the condition of the left hip joint when I first saw the case, carrying with it necessarily the constitutional disturbance. Rest and position rapidly caused the inflammation to subside and the contained fluid to be absorbed, and continued rest induced the joint tissues to entirely recover their normality.

Second. Undoubtedly our little patient was a subject of the hæmorrhagic diathesis. The severe and unprovoked attack of hæmorrhœa from which he suffered while under our care, and the repeated attacks he had experienced previously; the purpuric spots and extravasations generally present on various portions of the body, and resulting, too, from slight bruises; the congenitality and hereditability* of this peculiar disposition; the waxy-colored skin; and the tendency to disturbance of the joints,—all point to the presence of this peculiar diathesis as described by investigators in this field.

Third. The hæmorrhagic diathesis was the predisposing cause, and the injury received—the fall on the stairs—was the exciting cause of the joint trouble. The hæmophilic are predisposed to articular derangement, for we are told by GRANDIDIER,† speaking on this subject:—"In some cases there seems to be an unusual tendency to rheumatoid pains and articular swellings." C. H. MOORE,‡ on the same subject, says: "In early childhood, and sometimes after full growth has been attained, these 'bleeders,' as they are called in Germany, are prone to affections of the joints, presenting some of the characters of rheumatism. The disease of the joints may vary in different individuals between mere pain and the most considerable swelling; but in many families no individual who has the hæmorrhagic diathesis fails to suffer also from some degree of the articu-

* A younger brother, born since the facts above related occurred, exhibited a large collection of fluid in the tunica vaginalis testis, of a dark purple color, and due to blood—an hæmatocele, HEISTER.

† *Schmidt's Jahrb.*, vol. cxvii, p. 329.

‡ HOLMES' *Surgery*, vol. i, p. 658.

lar disease." That there is, then, a connection between hæmatophilia and articular disease cannot be denied. None of our works on joint diseases recognize this fact, or even hint at it, which is the more remarkable as the truth has been observed for many years. I may not hope to determine the question as to or in what this relation consists, but I do desire to call attention to the fact, and would express an opinion that I entertain that the immediate cause of the inflammation in the hip-joint of our patient was synovial extravasation of blood, combined with or followed up by excessive use of the limb.

As has been stated, ecchymoses, resulting from slight blows, were frequent in the subcutaneous areolar tissue. Why might not blood also be extravasated in the connective tissue elsewhere, the same cause existing? We are told that the round ligament is sometimes caught between the acetabular cavity and the caput-femoris, thus necessarily being bruised. Now, with a tendency present to these extravasations, why may not blood be poured out, and greatly distend the ligamentum teres?—which condition, it seems, would, in conjunction with active use of the joint, give rise to inflammation; or the extravasation may have occurred in some other part of the joint and, being considerable, act as a foreign body, to a certain extent, and, with motions active, cause inflammation. Our little patient has on several occasions, after severe sport, as jumping, suffered from pain and swelling of the ankle, accompanied with purplish coloration. Pressure, with quiet, always caused the trouble to disappear.

My experience has not been sufficient to enable me to speak *ex cathedra* on this subject; but from my limited stand-point I deem the view above expressed not unreasonable.

The exact pathological lesion of hæmophily is not known. While many attribute it to a change in the capillaries, there are facts that point to the constitution as causative. The occasional periodicity of the bleedings, and the persistency

of the hæmorrhage, even though pressure is made directly upon the bleeding point, indicate a cause back of the local lesion. But that the vessels are at fault is evidenced from the frequent ecchymoses following the slightest blow or compression. Even the pressure of the instrument, though well padded, caused the purple spots to appear on our patient. These spots are not a mere discoloration of the part, but consist of an extravasation of blood, which becomes clotted, can be readily felt, and will be slowly absorbed. It is in the peculiarity of these spots that we find, I think, the chief difference between the affection we are considering and purpura hæmorrhagica. In both blood has escaped from the vessels, but in the latter the spots are variable in size, commencing as stigmata, or mere specks, and enlarging into petechiæ, vibices, and finally appearing as ecchymoses, and all spontaneous. In hæmatophilia the ecchymoses are found, and of their full size at once, and resulting from bruise or injury. As shown by COHNHEIM's and PRUSSACK's experiments,* blood corpuscles may pass directly through the capillary walls, constituting *hæmorrhage per diapedesin*. This is doubtless what occurs in purpura; but in hæmatophilia there is a veritable extravasation. The flow of blood continues persistent, but not because it has lost its coagulability. The blood of our patient clotted both in the air and stomach. If, however, the bleeding is long continued, then it does lose its coagulating power, and thus the importance of checking the flow at the earliest practicable moment.

Cases of hæmorrhagic diathesis are sufficiently rare, and when they do occur are deserving of more than a mere passing notice; but I do not care to ask for greater indulgence; so that with a few words as to treatment I will have done. This divides itself into that of the attack and of the interval. There is no more painful position in which the medical man can be placed than to watch at the bedside of a patient whose life-blood is ebbing away, and he all-

* *Virchow's Arch.*, xli, p. 227.

impotent to arrest the flow. The pale, waxy, almost transparent countenance; the dilated pupil; the glazed, fixed expression of the eye; the sighing for breath; the calls for air, for water; the restlessness; the nausea; the feeble, almost imperceptible pulse; the cold extremities; the clammy surface,—all together make up a picture to try the stoutest heart. There seem to be cases where our art avails nothing—where all the resources of the learned surgeon fall powerless to arrest the bleeding; but these cases are so few that sad indeed must be the reflections of that medical man who, through ignorance of the proper hæmostatic measures, allows this to happen. The more promptly the bleeding is arrested the better, for by its continued flow the blood becomes watery and loses its coagulating property. Firm pressure, combined with the immediate application of the persulphate of iron, is one of the best means to adopt locally. This proving unavailing, the actual cautery may be applied. Of general remedies, the *secale cornutum* stands deservedly high. We know ergot to be a stimulant of the involuntary muscular fibres, and thus its power to induce contraction of the blood-vessels. If perseveringly continued, benefit may be expected from its use. A mistake frequently made is the dropping of a remedy before it has been sufficiently tried, and substituting another. The flow of blood not immediately ceasing, and the demand for prompt measures seemingly so imperative, confidence is lost in a hæmostatic before its properties are fully tested. Ol. terebinth., acid. gallic. and plumbi acet. are all efficacious, and good results are reported from their use. As a dernier resort transfusion should be employed.

During the interval the system should be toned up; generous diet, tonics, cold baths with friction, abundant exercise—not too active—and even a change of habitation to a more bracing atmosphere. With the measures adopted for enriching the blood must be employed exercise sufficient to use it up; otherwise the vessels become so charged, and the heart acts with such force that the barriers give

way, the flood-gates are opened, and the bleeding comes on. Certain prodromic symptoms are observed to precede the attack at such time, and to forestall it the sulphate of soda in continuous doses should be administered. I conceive that the fluid stools produced by its use would draw upon the blood, diminish the amount circulating in the vessels, and also induce such constitutional effects as to ward off the attack. Experience has proved its efficacy.

CORNER SEVENTH AND LOCUST STREETS, July, 1870.

*UTERINE CATARRH.**

By MONTROSE A. PALLAN, M.D., Professor of Gynæcology, St. Louis College of Physicians and Surgeons.

To effect a proper mucous nutrition is the object sought to be obtained in the therapeutics of uterine catarrh. To do this, local treatment is of primary importance, but not of that character which precludes a judicious constitutional hygiene, not a constitutional medication. Iodide of potassium, iodide of mercury, and the preparations of valerian, have destroyed more patients by deranging digestion than have the diseases for which they have been administered.

It is a rare thing to see a woman with uterine catarrh in robust health, and rarer still to see a robust woman with uterine catarrh, the deduction thereby drawn indicating the incompatibility of the two conditions. Whether the local uterine catarrh is a sequence of defective health, and thereby an index of diminished uterine reproductive power, or whether the abnormal health be a consequence of local uterine difficulty, is not a question capable of being thoroughly demonstrated. We know that the former frequently takes place, as in phthisis, leucæmia, eruptive fevers, small pox, cholera, etc., and then the uterus is only one of many exponents, indicating feeble systemic repro-

*Continued from page 328.

ductive power; whereas, we can hardly imagine local uterine trouble to exist (the catarrh always a symptom) without some coexisting systemic developments, such as pain in some portions of the body; hysteria, either neuralgic, emotional or otherwise; and dyspepsia, indicative of gastric, hepatic, renal or splenic secondary disease.

Premising these generalities, and believing the causation of the uterine catarrh to be understood before local treatment has been commenced, the question naturally arises, what manner of treatment is necessary? It were well, perhaps, before entering into special remedies and their modes of application to consider some general questions. The patient's health is usually below the proper standard; her bowels frequently constipated; her stomach is deranged; she has pains of a more or less acute character in the lumbar, dorsal and iliac regions, with a lassitude of habit, and an indisposition for exercise or labor. For her constipation she has been purged; for dyspepsia she has taken soda, pepsin, etc.; for the pains she has been rubbed with liniments, both stimulating and anodyne, or covered by plasters, blisters, *et id omne genus* of counter-irritants. The walls of the house are being constantly repaired, but the leak in the roof is being overlooked, and at each rain the same difficulties have to be overcome.

With the diseased woman, after each menstrual flow, the repairers of nature are summoned from their hidden resorts to obey the behests of medicines, and are exhausted more and more each time. Pent up by reason of a diseased uterus, the forces which are in demand for a proper balance of healthy action are in constant agitation, and can never get calm until the governing or central power functions properly. The diseased uterus of the human female is a sort of disturbed central telegraph box, which precludes a proper transmission of messages, however perfect may be the wires and out-stations.

The question of treatment depends upon that condition which brings about the catarrh. What is the cause of the

hypersecretion of the mucous investment of the uterine cavities? Is it the result of diseased liver, and a consequent engorgement of the uterine tissues by stasis of the uterine veins from repletion of the hæmorrhoidal plexus? If so, the induction of hepatic normal functioning empties these vessels, and they in turn offer a free channel for the flow from the inosculating veins from the uterus, and the hypersecretion from its lining membrane ceases by virtue of the withdrawal of hypernutrition. Here the depletive local treatment hastens the cure, consisting in the abstraction of blood from the tissue of the cervix, or from the lining membrane of the cavity. Should the converse take place, and an anæmia of the uterus ensue, it produces defective nutrition, as in those forms of catarrh which result from enlarged spleen (so frequently seen in the malarial regions of the West and South), where the patient is almost leucocythæmic. Here, undoubtedly, the anti-paludal treatment of quinine, iron, and some of the iodides, principally iodoform, will bring about a cure of the catarrhal discharge, but the return to health is materially quickened by local applications. This local treatment must be of that kind which will *dry up*, by a species of tanning, the undue pouring out of the hypersecretion from the mucous linings either of the neck or body, and which I call the *xerotive*, of which carbolic acid, some of the preparations of iron, and the dilute mineral acids, are the best applications. The lining membrane here is in an analogous condition to that of the colon and rectum of patients who contract those obstinate forms of disease, so common to the paludal districts of the southern and southwestern portion of this continent, where there is nothing more nor less than a flabby condition of the lining membrane depending upon a telangiectatic condition of both afferent and efferent vessels.

In other forms of *apparent* ulceration (and follicular inflammation about the fornix vaginæ resulting from the accumulation of the muco-purulent discharge), where the

os uteri is patulous, the surrounding structure of the cervix indurated, painful to the touch, scarlet in color, the external mucous covering bleeding upon the slightest application, and where no coincident constitutional condition can be determined, a catarrh of the uterus is evidently symptomatic of some increase of growth of the connective tissue in the neck (frequently in the body), which brings about a stasis of the uterine-tissue vessels, dilatation of the capillaries, endometritis, or endocervicitis, and œdema of the surrounding structures, and is most generally found in women who have borne one or more children. The treatment here is local—the depletive combined with the *absorptive* method, consisting in blood abstractions, applications of cantharidal collodion for blistering purposes, followed by those of compound tincture of iodine or solution of bromide-iodine (10 per cent.), with large douches of *hot* water, and glycerine cotton. In these cases a moderate amount of quietude is necessary, and absolute continence from *coitus* indispensable. The bowels should be kept free by such gentle aperients as will produce fluid stools, and good nutritious diet enjoined. Warm baths—or better still, the “Turkish bath”—are of great benefit. A good supporter, such as will keep the abdominal walls well lifted from the lower pelvis, should be constantly worn when the patient is not in the recumbent position, as it frees the uterine sustentative tissues from any superincumbent weight.

In those forms of catarrhal discharge, depending upon that condition which writers commonly recognize as chronic inflammation of the neck (the white induration of the earlier French observers), and which was supposed to be parenchymatous, or true tissue inflammation, but which modern pathological anatomists call “diffuse growth of the connective tissue,” and which results from constant engorgement or hyperæmia, superinduced by frequent abortions or deliveries, we have to deal with a condition truly formidable and obstinate. There is chronic endometritis to be overcome, and, as a consequence, dysmenorrhœa. The

processes of repair for the gynæcologist to rouse up, are imitative of nature. Involution must be accomplished, else the nutrition of the utricular glands and the entire muciparous system continues to be either in excess or defective, begetting, *ex necessitate rei*, the catarrhal discharge. The local treatment of such cases is by the *absorptive* method, viz., blistering the cervix with cantharidal collodion, or bromide-iodine (35 per cent), followed by the *destructive* method of LISFRANC and BENNET, viz., the caustic potash to "melt down" the cervix, or the actual cautery in a somewhat less heroic manner than did JOBERT. Deep, free scarifications of the tissue of the cervix are also very good, as the hæmorrhage can be easily controlled and checked by the iron styptics.

In these cases, also, the beneficial effects of hot-water douches, per vaginam, are plainly perceptible, although I must say I have never yet seen those good results which SCANZONI and other continental gynæcologists claim for hip-baths, either hot or cold. Indiscriminate bathing is too frequently prescribed, and like all other therapeutics when presented without judgment, is frequently followed by disagreeable or even unfortunate results. Baths are absolutely necessary to every one for the sake of cleanliness, but for diseased uteri must be ordered with great caution, lest we enfeeble a constitution already weakened by irritation, or over-stimulate a nervous system drawn to its highest pitch by activity of inflammatory processes. In these cases it is a matter of as much nicety of judgment as dexterity of manipulation not to overdo the local applications, lest we destroy too much of substance or involve the surrounding structures. For these reasons we cannot be too careful in the use of such powerful remedies as the potential or actual cautery. Here, as in all cases of uterine catarrh, intra-uterine treatment is absolutely requisite, whether we pass the internal os and penetrate the cavity, or whether we stop short of it and only apply materials upon the endocervix.

I have time and again called the attention of students

and others, at the clinics over which I have presided, to the facility with which we can reach the very fundus of the uterus, and make application thereto, and how we can avoid the coagulation of the contents of either the cavity of the cervix or of the body, by wiping them away with cotton wrapped on an applicator, and slightly wetted with very dilute hydrochloric or carbolic acid. Frequently the cavity of the cervix may be most thoroughly cleansed by a stream of tepid water thrown into it, and sometimes even the cavity itself may be penetrated with the syringe-pipe, and no harm ensue; *provided the fluid can flow freely back again into the vagina; otherwise it should be dilated by sponge tents, never trusting to a canula or any other small tube.* I have many times injected the uterus for various purposes, and with strong solutions of nitrate of silver, tincture of iodine, solution of the sesquichloride of iron, etc., etc., and have never seen any bad result, whenever the above precautions were used.

The catarrhal discharge being either wiped or washed away, there is no difficulty in applying medicaments to any portion of the uterine mucous surface; and, wherever a failure so to do ensues, it must be attributable rather to a want of skill than to any great difficulty in accomplishing it, remembering the rule that we should never attempt to pass an internal os when it is of less diameter than the instrument attempted to be passed, or that we should neglect to bend the applicator so that it will enter according to the axis of the cavity. The discussions brought forth within the past year concerning intra-uterine treatment seem to have been engendered because of a misconception of condition calling for it; and, from the fact that a delicate differential diagnosis in many instances was overlooked. The uses of chromic acid, of tinct. of iodine, of the preparations of iron, of permanganate of potash, of carbolic acid, of solid nitrate of silver, are each and all of them capable of producing great benefits, and are equally pregnant with failure, and sometimes of harm.

When COURTY* placed his solid nitrate of silver in the cavity of the uterus, he knew full well that the condition of the mucous membrane was such as to permit of the presence of a *destructive*, such as the caustic, because it was covered with granulation-like growths, and they were bathed in a copious catarrhal secretion which, in all probability, held much of the salt in suspension, or even neutralized its action. The probabilities are that so violent an action would be enkindled upon the mucous surface proper, by solid nitrate of silver, as to lead to a severe or even fatal endo-metritis, or endo-salpingitis, or metro-peritonitis. COURTY may possibly make the nice differentiation calling for endo-uterine cauterization, which few others would have the hardihood to attempt.

In those cases of catarrh depending upon the trachomatous (hard, pale granulation) endo-metritis, chromic acid or bromide-iodine (35 per cent.), applied on the cotton-wrapped applicator, followed by Churchill's tincture of iodine, applied in the same way or injected after spongenting, will bring about a cure without involving much, if any, risk of cellulitis, metro-peritonitis, or peri-metritis.

There are many cases of uterine catarrh to which none of the ordinary methods of treatment seem to be at all applicable; where there is a sluggishness or even absence of vaso-motor nerve action, and which appear to be dependent upon some of those hidden spinal or ganglionic causes observed in chlorotic, amenorrhoeic and senile patients, the hypersecretion welling from the cavities (more frequently from that of the body) being acrid and irritating, giving rise to pruritus vulvæ and to herpetic ulcerations upon the cervix and pudenda. In such it is sometimes necessary to resort to Faradization of the entire system of spinal nerves, and through the cavity of the uterus. The uninterrupted current seems best in chlorotic and amenorrhoeic patients, whilst the diffusive sensational interrupted

A. COURTY, *Traité pratique des Maladies de l'Utérus et de ses annexes*, p. 616, et seqq. Paris, 1866.

current is applicable to senile patients. I have had some excellent results from this process of *stimulative* treatment in these classes of cases; and, its repeated and continuous trial yielded benefits when all other methods had failed.

After parturition it is not an uncommon result to notice a profuse discharge per vaginam—the result of a laceration of the cervix. Unless this heals by the granulation process, the cervix and the rent itself become covered with a soft ulceration, commonly known as the “granular erosion,” and the vulvo-uterine canal is also sometimes the seat of a follicular inflammation, giving rise to a very copious leucorrhœa. All of the applications which the ingenuity of the practitioner may devise usually fail to check it, and the closure of the fissure by freshening the edges (as in hare-lip) and bringing the raw surfaces together by metallic sutures, will frequently accomplish in one month that which had failed by medication for ten years. I have seen very many such results from this *reparative* method of treatment.

Uterine catarrh, then, may be said to be a symptom, the peculiar character of which is as variable as the pathological conditions which give rise to it, and the local treatment for each is specially applicable, and may even be sometimes advantageously combined, as the *absorptive* with the *depletive*, or the *destructive* with the *absorptive*, or the *xerotive* with the *stimulative*.

The applications to the cervix and to the cavities may be summed up as follows:

The XEROTIVE (drying-up process, or tanning,) consisting of the applications of the preparations of per-sulphate or sesquichloride of iron, carbolic acid, sulphates of copper, zinc or cadmium, matico, tannin, alum and nitrate of silver. The iron, carbolic acid, alum, matico and tannin may be applied pure, but the zinc, copper, silver and cadmium must be used in mild solutions. Applicable to flabby conditions of the lining membrane, where there is no activity of circulation.

The ABSORPTIVE consists of the application of the preparations of iodine and bromine, either in solution, in suppository, or in medicated tents. Cantharidal collodion is perhaps both absorptive and destructive. Hot water douches so much facilitate the action of the absorptives that they may be ranked as such. So rapid is the absorption of iodine from the uterine cavity that I have known patients to taste it almost immediately after it was applied. Applicable to enlargements of the cervix and body where there is diffuse growth of the connective tissue, and endometritis, or endo-cervicitis without enlargement.

The DESTRUCTIVE always implies a loss of substance, and is never applied within the *os internum*, and should be used with extreme care within the *os externum* and endocervix, and consists of the heated iron, caustic potash, chloride of zinc pellets, bromine, bromide-iodine (in various strengths, from 50 per cent to pure), chromic acid, nitrate of silver, the mineral acids, acid nitrate of mercury, etc. The methods of applying these, and when they should be used, must be left to the judgment and dexterity of the surgeon or physician. Applicable to extreme enlargement of the neck; to sub-involution of the entire organ; to all conditions where there is proliferation and growth of connective tissue, or where some neoplasm can be reached to be gotten rid of, in order that the cause of the catarrh should be made to disappear.

The STIMULATIVE and REPARATIVE methods need no recapitulation.

The DEPLETIVE might be considered in a separate paper from this, as its bearing upon the treatment of catarrh is probably of paramount importance to all others. A few words concerning it and I am done. There are few conditions of the cervix and lining membrane outside that of anæmia, and sometimes even here, which will not bear local depletion. Leeches I discard, because we cannot always control the amount of blood they take; besides, they are painful and troublesome to apply, and are expen-

sive. We can accomplish, by puncturing with a simple cataract needle, much more readily and satisfactorily, all that may be necessary, and we can draw blood from whatever spot we may desire, and take one, two or three ounces, which is usually enough at one time. The local abstraction of blood from the tissue of the cervix is the most powerful agent in the hands of the gynæcologist, in the ordinary uterine catarrhs, where the cause is not neoplastic or mechanical. The wonderful softening produced by the abstraction of blood has frequently been witnessed after those operations about the cervix, where an ounce or two of blood has been lost; where the tissue, prior to the cutting or the dissection, was dense and hard, and at the close of which was nearly as flexible as the surrounding vaginal substance. This production of softening of tissues is readily appreciated as an adjuvant to subsequent treatment by the different methods above noticed, very important and valuable.

In fine, the conclusions which one draws from the treatment of uterine catarrh are, that it is a most obstinate and rebellious symptom, never to be relieved unless its cause is abated, and the patience of the practitioner is well drawn upon ere the result is accomplished.

*DOUBLE-ACTING ELASTIC STOMACH-PUMP.**

By JOHN T. HODGEN, M.D., Professor of Anatomy, etc., Saint Louis Medical College.

The advantages claimed for this stomach-pump over others are: That it is cheaper than any now in use. It may be used to pump fluid from the stomach, and by only turn-

* Cf. also p. 321 of this Vol., number for July.

ing the hand over, it will fill the stomach, thus enabling

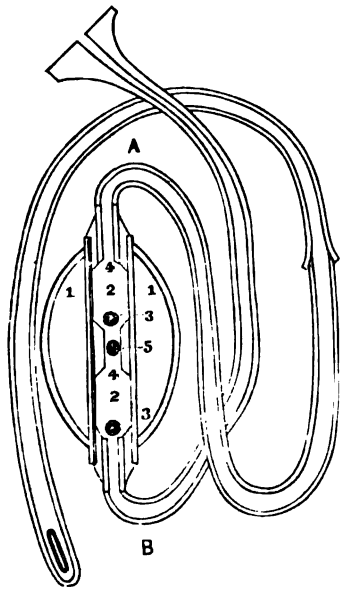


Fig. 7.

or if B be uppermost, the current would be from A to B. 5. Opening in the tube, through which the elastic bulb communicates with the valve chambers.

us to wash out the stomach quickly and easily. It may be used as any other elastic syringe for injecting the bowels, vagina or bladder. Of course the tube used should be a stomach tube when used to empty the stomach, or a double catheter, or a rectum or vagina tube when these parts are to be injected.

EXPLANATION OF DIAGRAM.—1. Elastic bulb. 2. Valve chambers. 3. 3. Ball valves that close the openings, near which they are placed in the figure when held as represented, or when the bulb is inverted close openings 4, 4. When the bulb is held as represented, with A upwards, the current of fluid would be from B to A,

Reviews and Bibliographical Notices.

STUDIEN AUS DEM INSTITUTE FÜR EXPERIMENTELLE PATHOLOGIE IN WIEN aus dem Jahre 1869. Herausgeg. von S. STRICKER. I. Wien, 1870.

[*Studies at the Institute for Experimental Pathology in Vienna during the Year 1869.* Edited by S. STRICKER.] Part I. With 4 wood-cuts and two plates. Vienna: W. Braumüller, 1870. 8vo., pp. 110.

The Vienna "Institute for Experimental Pathology," under direction of Prof. STRICKER, has commenced the publication of a series of "Studies," from which we may expect the most important advances in modern pathology, if the present number is at all an index of the value of future ones. The volume before us records a number of studies all more or less intimately connected with the subject of inflammation (the pivot upon which, in all ages, the medical philosophy of the time has revolved—BENNETT), by investigators working under the superintendence of Prof. STRICKER. The latter, whom the title-page announces as the editor, introduces the subject by an historical sketch of the doctrine of inflammation, the origin of pus corpuscles, the experiments on traumatic keratitis, exudation and inflammation, and the connective-tissue theory. The investigations recorded in the papers which follow have been suggested by the discoveries of COHNHEIM, which call for a renewed testing of the doctrine of inflammation in all directions. We presume our readers to be acquainted with the fact that the emigration of leucocytes through the walls of the blood-vessels is no longer contested.

The first paper, entitled "Experiments on Inflammation of the Cornea," by W. F. NORRIS and S. STRICKER, develops the fact that, contrary to COHNHEIM's assertion, the "fixed" corpuscles of the cornea *do* possess the power, under the inflammatory influence, of becoming endowed with mobility, of changing

form, of dividing and giving origin to "wandering" cells; so that the young cells of the inflamed cornea are not derived exclusively from the blood.

The second paper, on the division of cells in inflamed tissues, by STRICKER, recounts how he observed "that, in inflammatory foci, wandering cells or pus corpuscles multiply by division;" that (in the frog's tongue) "apparently motionless connective tissue corpuscles can acquire, in the course of the inflammatory process, a certain degree of mobility; that phenomena are observed in them which indicate attempts at division, and finally, that parts of them become as capable of motion as ever amœboid cells are." In the cornea, moreover, direct observation showed that not only do wandering cells divide, but also both epithelial cells from DESCMET's membrane, and larger "fixed" elements of the inflamed cornea, can be changed into migratory cells.

The experiments and arguments adduced in the very interesting third paper, by Prof. STRICKER, led him to the conclusion that the phenomena consequent upon a traumatism have a causal connection; "that by an irritation applied to the center of the cornea we establish, through the nerves, and in second line through the vessels, conditions which possess a causative import as regards the exalted function of the former elements; and that changes in the sphere of the sensitive and vasomotor nerves are an essential link in the chain of inflammatory phenomena."

In a lengthy paper entitled "On Traumatic Encephalitis," Dr. F. JOLLY, of Munich, shows that the walls of vessels take part—important part, it would seem—in the morphological changes in encephalitis; that the formation of fat globules (and "inflammation-globules" of GLUGE) is not an infallible sign of regressive change; granule-cells (GLUGE's globules?), which are afterwards converted into fibres contributing to the cicatrization of the inflammatory focus, arise partly from thickened spots in the walls of vessels, partly free in the tissues, the latter certainly from white blood-globules, probably also from the cells of the neuroglia and from nerve-cells.

Dr. OELLACHER's "Investigations on the Segmentation and Division into Layers of the Ovum," recorded in the next article, also throw light on some points involved in the doctrine of cell-development.

In the sixth paper, Dr. OSER demonstrates, as he thinks, after numerous experiments and observations, an endogenous formation

of pus corpuscles in the epithelial cells of the conjunctiva, as asserted by BUHL, REMAK, et al. ; "epithelial cells can become mothers."

The increase by division of the "muscle corpuscles" described by WALDEYER, having been called in question by several later observers, Dr. TSCHAINSKI made a study of this subject at the Institute. His cautiously worded conclusions are to the effect that the old muscular fibres can produce, in inflammation, forms altogether similar to such as are known to be in course of development ; that in all probability elements already metamorphosed for purposes of special function are capable of being reduced to the condition of young cells.

The eighth article contains investigations by Dr. v. HÜTTENBRENNER on the tissue changes in the inflamed liver.

The next paper is by Messrs. KLEIN and KUNDRAT, who observed the behavior of the fixed cells in the tail of the tad-pole after mechanical irritation, and showed that these also resume the power of moving and changing form under traumatic influence. Division was not observed.

The work concludes with a résumé by Prof. STRICKER, entitled, "On Inflammation and Suppuration," of which we will attempt to give a sketch. The source of the pus-corpuscles is the first question answered: We know positively that in the beginning of the inflammatory process numberless colored blood-corpuscles leave the vessels and migrate into the tissues ; hence it is no longer a question whether pus-corpuscles originate from the blood ; we can only investigate from what *other* sources they may be derived. STRICKER holds that both pus-corpuscles and the white corpuscles in the blood are *young* cells, sharing all the characteristics, subject to the same variations, of all young cells. Hence their resemblance. Now, it has been shown above all, that the pus-corpuscles themselves may divide ; secondly, that epithelial cells produce a young generation, both by division and by endogenous development ; furthermore, that connective-tissue corpuscles, in inflammation, assume the character of pus cells, and in all probability have the power to divide. Finally, muscle corpuscles increase in number by division. Hence "*pus-corpuscles originate from various sources.*"

Having learned, moreover, that the inflammatory process is accompanied by lesions of nutrition—such as increase of substance, change of form, the appearance of new nuclei—which

mean an increase of vital processes, we may enunciate the general proposition that "*the inflammatory process is attended with an exaltation of certain functions in the cells concerned.*"

But the local lesion of nutrition (VIRCHOW) thus proved is not the only element of importance in the inflammatory process; *exudation* (BENNETT, ROKITANSKY), plays an equally essential part; it is, next to the lesion of nutrition, perhaps the most important characteristic of inflammation. In the course of experiments, STRICKER showed how essential to the activity of the movable cells was the current of serum. He therefore looks upon the process of exudation as of two-fold influence: (1) the current of serum is a mechanical irritant, and (2) the liquor sanguinis supplies nutritive material.

The series of phenomena which compose the process of experimentally produced inflammation, according to our present knowledge, are: traumatism, lesion of circulation, exudation of fluid and formed constituents, lesion of nutrition, and new-formation. Neither of these characteristics is sufficient by itself; traumatism, even with disturbance of circulation, may fail to end in inflammation; exudation alone is not inflammation (e. g. œdema); neither is a lesion of nutrition and new-formation always inflammation.

The quintessence of what has been achieved in this work of Prof. STRICKER and his collaborators resides in the distinct enunciation and exact demonstration of the fact that young cells are produced from the old; "that many tissues [cells] are by the inflammatory process estranged from their physiological purposes and reduced to a condition adapted to purposes of procreation—that is, they become movable, increase in substance, and divide either totally or partially, or perhaps not at all."—(p. 109.)

Not all tissues are alike in this respect. There is a gradation of stability. As regards the inflammatory process, there is no exclusive position for either the connective-tissue or the epithelial cells; both are changeable, more or less; some cells are more easily turned aside from their physiological purposes than others. Not all the fixed corpuscles of the cornea, for instance, are affected equally; some seem too old to return to the character of young cells and divide; "there are matrons, also, who no longer bear children."

G. B.

RENAL DISEASES: A Clinical Guide to their Diagnosis and Treatment. By W. R. BASHAM, M.D., F.R.C.P., Senior Physician to the Westminster Hospital, and Lecturer on Medicine, etc. Philadelphia: Henry C. Lea, 1870. 12mo., pp. 304. Price \$2.00.

[For sale by the St. Louis Book and News Co.]

Diseases of the kidneys have become a subject so thoroughly studied of late, their nature and morbid anatomy are so well understood in comparison with many or most other branches of internal pathology, that the literature of these diseases has become quite extensive. Systematic treatises on kidney diseases have multiplied so as seemingly to leave no room for new comers. And yet we have had no work so concise in its execution, and so practical, as that of Dr. BASHAM. The meritorious works of STEWART and DICKINSON, and the cumbrous volume of BEALE, are devoted rather to the exposition of new researches and original views than to the needs of the student. Dr. BASHAM's "Guide" is free—commendably so, with reference to its purpose—from discussions of disputed points, as well as from argumentation and defense of the author's own opinions and investigations. It is entirely objective. Only in one instance does the author deviate notably from this rule, to refute the bugbear of oxaluria.

The book is divided into three parts, of which the first treats of inflammations of the kidneys, i. e., "diseases marked by symptoms more or less of an inflammatory character, . . . indicated by bloody, albuminous, or purulent urine," etc.; while the second part treats of "renal diseases non-inflammatory"—which designation is not consistently carried through, as the author still uses chronic *nephritis* as a synonym. In these chapters close attention is given to the etiology of the various forms of kidney disease.

The third part fills a want in our literature that has been very seriously felt by the clinical student; it describes the "properties of the urine, physical, clinical, and morphological, significant or otherwise, of renal disease." It embraces sufficient references to the characters of healthy urine, the deviations from the normal, and the necessary tests for detecting them, without going into the more complicated and clinically unnecessary or impossible analyses, and lastly a pretty complete semeiology of the urine. All this is compressed with much skill—and labor, no doubt—into 86 pages, a part of which is occupied by the digression on

oxaluria already alluded to. We regret the necessity of alluding to some statements in this part which are inaccurate—none more so than this one: “. . . Whenever uric acid is in excess and constitutes evidence of disorder, the crystals are freely deposited or urates are formed in excess.” In truth, the uratic sediment is by no means proof of increased excretion of uric acid; the degree of concentration and of acidity are essential conditions for its formation, more influential than the daily amount of uric acid excreted.

As a delicate test for albumen, Dr. BASHAM recommends tincture of galls. We should like to see added to his list of tests that by carbolic acid, which in our hands has proved especially valuable in estimating the quantity of albumen by the height of the sediment in the tube, as directed on page 265. The coagulum by carbolic acid* is of more uniform density than that by boiling, and for this reason alone the test yields more reliable results.

A few wood-cuts added by the American publisher—if our memory serves us right (Mr. Lea fails to indicate their source) from Dr. ROBERTS's book on the urine—do good service in illustrating this last part of the book, which we cannot too emphatically recommend to the medical student. G. B.

SAMMLUNG KLINISCHER VORTRÄGE, in Verbindung mit deutschen Klinikern herausgegeben von RICHARD VOLKMANN.

[*Collection of Clinical Lectures*. Edited, in connection with German Clinicists, by RICHARD VOLKMANN]. Leipzig, 1870. 8vo.

1. *Ueber Kinderlähmung und paralytische Contracturen*. Von R. VOLKMANN, Prof. in Halle. pp. 22.
2. *Ueber Reflexlähmung*. Von E. LEYDEN, Prof. in Königsberg. pp. 24.
3. *Ueber das Wesen des Puerperalfiebers*. Von O. SPIEGELBERG, Prof. in Breslau. pp. 24.

[Imported by B. Westermann & Co., N. Y., and F. Roeslein, St. Louis.]

The first three numbers of a promised collection of clinical lectures have just been placed before us. Pursuant to the announcement, contributions of prominent German writers and clinical teachers, and on subjects of diversified practical interest,

* Carbolic acid, acetic acid, each one part, alcohol two parts.

are held in store for us by Prof. RICHARD VOLKMANN. We have perused them with great profit, and are glad to see our trans-Atlantic co-laborers in the arena of medical science adopt the easy and direct form of handling scientific subjects in preference to the old, heavy, dogmatic way of the past. Thus on twenty-two pages we find all that refers to the subject of "Infantile Paralysis and Paralytic Contractions," by VOLKMANN, of which DUCHENNE filled almost a volume without imparting more useful knowledge, or demonstrating how to relieve the affection more readily. If the fastidious reader is not fully satisfied with Prof. VOLKMANN's clinical exposé of this very interesting subject, we should advise him to bear in mind, first, that it is comparatively a new and as yet insufficiently explored one; and next, that the questionable disease is of so diversified a clinical character as not likely to be exhausted by ten equally able inquirers; in fine, that surgery cannot fill the still existing hiatus in the physiology and pathology of the nervous system. Making, therefore, due allowance for the defects in our knowledge of infantile paralysis, the author has furnished a well arranged, maturely digested, and comprehensive summary, certainly a very acceptable contribution to modern literature on the subject. We hope that this lecture will soon find, as it deserves, translation, and thus be rendered accessible to the American profession.

The second number is by Prof. LEYDEN, of Königsberg, on "Reflex Paralysis." The author ventilates the subject most thoroughly, analyzes all the known facts and views bearing upon that subtle question, and comes eventually—as most authors—to the conclusion that reflex paralysis is rather a speculation than a demonstrable disease. With him progressive neuritis lies at the bottom of the disease—which certainly is more compatible with our physiological and pathological understanding.

In the third number, Prof. OTTO SPIEGELBERG, of Breslau, gives us a very rational survey on the subject of "Puerperal Fever," which he etiologically connects with the raw surface of the parturient uterus, the secretion of a material readily decomposing and absorbed, and the puerperal fever as the result of a thus engendered septicæmia, with all its minute changes within the blood and the blood-vessels.

In press are lectures by Prof. THEO. BILLROTH, of Vienna, on "the Diffusion of the Inflammatory Process," and Prof. H. HILDEBRANDT, of Königsberg, on "Retroflexion of the Uterus."

The editor of these lectures proposes thirty as the first series, which may also be had in single numbers.

Among the contributors mentioned we find the names of men who have already gained for themselves distinguished reputation, and the character of whose writings is marked by that independent thought and action which has emancipated medical science from mysticism and dogmatism.

L. B.

MICROSCOPICAL ANATOMY OF THE HUMAN LIVER. By Dr. H. D. SCHMIDT, of New Orleans. (From the *N. O. Journal of Medicine* for October, 1869.) 8vo., pp. 59. With three lith. plates.

Dr. SCHMIDT, by his article on the minute structure of the hepatic lobule, published in the *Amer. Journ. of the Med. Sciences*, January, 1859, had already introduced himself to the medical world as a capable and trustworthy worker in the field of histology. Various mishaps—the war, the destruction by fire of the Smithsonian Institute, sickness—delayed the publication of his more extended researches on the minute anatomy of the liver until the present time. In the prefatory remarks to the pamphlet now before us he asserts his priority as the discoverer of the tubular nature of the radicles of the biliary passages—which has been since abundantly confirmed by later observers.*

Besides this discovery, the author asserts that the lymphatic vessels of the liver communicate with, and indeed *arise from*, the network of biliary capillaries—an assertion in support of which he quotes GUILLOT, but which has not, as far as we know, been verified by any one since. The fact that lymphatic vessels are often injected with coloring thrown into the biliary ducts was known before SCHMIDT, but has been explained by rupture of the biliary capillaries; and the fact that very perfect injections of the lymphatic network have been obtained after REICHMANN'S method, by HERING,† e. g., without injection into the bile passages, militates severely against SCHMIDT'S doctrine.

The third important point of the present publication is a detailed description of the racemose glands of the hepatic ducts, which differs considerably from that given by other observers.

* Lately, this network has been represented by LEGROS to be the *bile-secreting apparatus*, while the hepatic cells subserve other functions of the liver. (Cf. *Arch. gén.*, June, 1870, p. 757.)

† STRICKER, *Lehre v. d. Geweben*, p. 449.

Whereas the majority of the latter describe them as embedded in the walls of the hepatic ducts, and emptying into the latter each by a single, or many by a common duct in a racemose arrangement, our author describes them as imbedded in the capsules of the liver, and their own ducts as forming "extensive plexuses" surrounding the larger hepatic ducts; only "when the latter become so small as not to be surrounded any more by the plexus . . . we find that their walls commence to be provided with single glands; that is, the glands, instead of first joining a plexus of large ducts, empty directly into the hepatic ducts."

Some useful directions for minute injections, with description of instruments, close the publication, which cannot fail to be appreciated by all students of the subject into whose hands it may fall. We regret the more, therefore, that it is not the product of the book trade, and therefore not easily accessible; and cannot withhold the remark that matter so valuable is worth better typographical execution and arrangement, a title page and a table of contents.

G. B.

A MANUAL OF THE OPERATIONS OF SURGERY, for the Use of Senior Students, House Surgeons, and Junior Practitioners. Illustrated. By JOSEPH BELL, F.R.C.S.Edin., Lecturer on Surgery, etc. Second edition, revised and enlarged. Edinburgh: MacLachlan & Stewart, 1869. 16mo., pp. xvi, 287.

This little work made its first appearance in 1866. The present—the second—edition is enlarged by twenty pages of additional matter, but otherwise retains its simplicity of arrangement and its compactness.

A careful perusal proves it to be one of the most—if not the most—valuable "hand-books" on operative surgery. It will find its place with profit in the dissecting room, where students should be drilled in the performance of operations on the cadaver; it is convenient for reference when the practitioner hurriedly desires to inform himself of the manner and best means of operating. In short, it is a rich kernel in a small shell, eminently practical, and avoiding labored descriptions of the possible but not probable operations of too many writers. There is no ambiguity in our author's manner of detail, and a few illustrations help out a proper understanding of the text. Errors are few—"obdurator" for obturator, both in the body of the work and in the index; plain Saxon "smash" for contusion.

Mr. BELL has for some years been an assistant to SYME, and thus we find, as might naturally be expected, this Nestor of Scotch Surgery well mirrored in our "Manual;" still, continental and American surgeons receive occasional credit, though there is an evident want of familiarity with what has been accomplished by us. We had noted passages at variance with our own views, and where points of real value had been omitted, but the brief space allotted us will not allow the extended remarks which would be necessary to point them out; so we can only express the gratification had in the perusal of the book, and bear witness to its worth.

A. J. S.

OBSTETRIC APHORISMS, for the Use of Students commencing Midwifery Practice. By JOSEPH GRIFFITHS SWAYNE, M.D., Physician Accoucheur to the British General Hospital. From the 4th London edition. With additions by E. R. HUTCHINS, M.D. Philadelphia: Henry C. Lea, 1870. 12mo., pp. 177. Price \$1.25.

[For sale by the St. Louis Book and News Co.]

This is a most admirable little work, and completely answers the purpose. It is not only valuable for young beginners, but no one who is not a proficient in the art of obstetrics should be without it, because it condenses all that is necessary to know for ordinary midwifery practice. The advice he frequently gives of sending for aid in doubtful or dangerous cases cannot be too often followed, as it not only teaches the student what to do next time, but inculcates the doctrine of sharing responsibility, whereby physicians learn to respect each other's opinions and to measure each other's skill and judgment. We commend the book most favorably.

M. A. P.

REPORT TO THE FACULTY OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF LOUISIANA, in regard to the Convention of Medical Teachers lately held in Washington City. Published by order of the Faculty. New Orleans, 1870. 8vo., pp. 7.

After the sickening labor of reading the large amount of reports and editorial comments on the latest effort in educational "reform" of the Convention of Medical Teachers, and of the American Medical Association, it is a real pleasure to be able to

refer those of the profession who have the cause of medical science at heart to the manly report of Prof. BEMISS, a delegate to the Teachers' Convention, made to his Faculty on his return. When, in the convention, it became apparent that only two delegates (of two schools) out of twenty-six (of eighteen schools) had gone to Washington with instructions to pledge their respective faculties to the action there to be agreed upon, Prof. STILLE's "substitute" prevailed, which converted the plan of concerted action into a mere *recommendation* to conform to the propositions adopted in Cincinnati in 1867. "Thus," says Professor BEMISS, "has terminated in miserable and humiliating failure one further effort to bring the various Schools of the United States to an agreement to general plans for improvement in medical education." . . . "The failure should be charged to its real cause, viz.: to the mortifying fact that in the public management of a number of medical schools, considerations of policy and expediency are paramount to any question touching either abstract professional rectitude or the advancement of the great interests of medicine." And in his experience, "there is not, at this time, nor at any discernible period in the future, the slightest hope of any general co-operation on the part of the schools of the United States in measures for the advancement of medical education."

Nor does Prof. BEMISS confine himself to regretful complaints of the hopeless condition of the cause. Here is his remedy, which, knowing that the pamphlet before us cannot reach all our readers, as would be desirable, we reproduce in his own words:

"He therefore respectfully suggests that the Medical Faculty of this University, while conscious that it is at this time making earnest and efficient exertions to educate its students to the highest attainable standard of acquirements and skill, and also that it is upholding in every proper manner the honor and interests of the profession, shall yet determine to carry into effect whatever measures of reform or improvement in the present system of medical education it may regard necessary and feasible.

"This it can do in its own time and manner, without further consultation with, or reference to, other institutions, but at the same time without declining co-operation with those schools of respectable standing which in good faith desire to place themselves upon a common platform. This course will avoid any participation, on the part of this Faculty, in future repetitions of the undignified farce of "Medical School Conventions."

"The day cannot be far distant when those medical schools, which act

up to the determination that their diplomas shall be conferred upon those candidates only who, after compliance with published rules, have attained a real standard of merit, will also determine to reject the tickets and diplomas of those schools which make them articles of mere traffic. Some line of demarcation, so boldly drawn as to become public to the profession, must be established between those institutions which make their highest honors covetable because they are real, and those which, on the other hand, seek no higher object than to fill their otherwise empty benches by unprofessional trimming and trickery, or by underselling or gratuitously distributing their tickets."

May the profession soon attain to a just appreciation of those schools that are really worthy of their support and esteem, and discriminate the wheat from the chaff.

VARIOLA; Causes, Nature, Prophylaxis and Treatment. A Report of Committee appointed by the St. Louis Medical Society, by C. SPINZIG, M.D. St. Louis, 1870. 8vo., pp. 37.

If there be one class of diseases, more than another, upon which the medical profession has been agreed as to etiology, pathology and prophylaxis, it is the so-called eruptive fevers. Yet if the conclusions of the author of the above pamphlet, as to the causes of variola, are to be accepted, they must, *a fortiori*, be admitted as true in regard to all other eruptive fevers, and every claim to specificity in disease is swept away at once. In short, "chaos has come again," and we have neither specific diseases, nor specific ideas of disease. He rejects a theory accepted almost universally by the profession, supported by facts that amount almost to a demonstration, to substitute therefor a very fanciful one, devoid of adequate facts to sustain it, and supported by a train of reasoning that could, to say the most of it, only establish a probability in the absence of facts or a more plausible theory.

The views of the author are embraced in the following five propositions:

1st. "Variola is dependent upon general causes common to other diseases.

2d. "The eruptive characteristics by which variola is recognized are transitory phenomena as necessitated (fixed) resultants of the operations of physical laws.

3d. "No 'specific' or 'contagious' virtue can be ascribed to this dis-

ease, and 'infection' is only accomplished by actual inoculation from its matter, which, however, is common to other decaying and putrid animal substance.

4th. "Vaccination is entirely devoid of 'protective' power, and being totally an unwarrantable practice as most serious and destructive consequences are thereby inflicted upon the human organism.

5th. "Prophylaxis and amelioration are only resting in sanitary measures that promote health in general."

The author's theory of causation may be concisely stated to be:

1st. General or "cosmic" causes, consisting in low state of positive, or actual negative electricity of the atmosphere, great variations in temperature, etc.

2d. Predisposing causes, as bad hygienic surroundings, overcrowding, want of cleanliness, bad diet, etc., leading to lesions of the organs of secretion, especially the kidneys, and an "acute (incipient) uræmia or azoturia" is established.

The predisposing causes, if aggravated, may lead to spontaneous or sporadic cases, and when in co-operation with the general or cosmic causes give rise to epidemics.

"Individuals who have labored under the predisposing—local—causes, suffering from acute uræmia, possess very little resistance or none against the general or cosmic causes, according to the quantity of predisposition developed in their systems. The number of the cases is thus increased, designated by routine an "epidemic," in order to relieve the agony which characterizes an unfounded apprehension, and to mantle the chaos augmented by confusion and transcendancy."

Upon the establishment of a uræmia as the result of the action of these general and predisposing causes hinges the whole pathology of the disease.

The treatment recommended consists in the exhibition of calomel, neutral hydrochlorate of quinia, and common salt.

We have not thought it necessary to enter into a detailed account of, or to combat the views set forth in this pamphlet, as we venture the assertion that not a single convert will be made by its perusal. In justice to the author we must say he has displayed great industry and research, an extensive consultation of excellent authorities, and expended much thought in elaborating a theory which is certainly unique. In justice to established theories we must say his premises are unsound, his reasoning fallacious, and his conclusions illogical.

T. F. P.

A GUIDE TO THE EXAMINATION OF THE URINE. For the Practitioner and Student. By J. WICKHAM LEGG, M.D., M.R.C.P., etc. Second edition. Philadelphia (London): Lindsay & Blakiston, 1870. 16mo., pp. 89. Price, \$0.75.

[For sale by the St. Louis Book and News Co.]

It is not too much to ask of a practitioner of any pretension, to *know*, and apply to the purposes of diagnosis and prognosis, all that is contained in this little book of Dr. LEGG. It therefore contains not a line more than it is *necessary* for the student to learn. It gives thorough instruction in those indispensable chemical and microscopical manipulations, by which "the most important clinical facts" are ascertained. The scope of the work is best seen in the "scheme for the examination of the urine," which the author recommends, viz.: (1) to observe the color, appearance, transparency, (2) specific gravity, (3) reaction; (4) to test for albumen, (5) for sugar; and, lastly (6), to examine any sediment that may be present. To the elaboration of this plan the main portion of the book is given, while an appendix of about twenty pages furnishes "a succinct account of the method of estimating the principal substances found in the urine;" but "no details have been introduced which require the use of a balance."

The instructions of this "guide" are elementary, direct, brief, in plain language; the rules for testing are concise and sufficient; but in the remarks on the "clinical import" of the substances, brevity has the better of completeness. The most serious omission is the want of a reference to the quantity of the urine excreted in health and disease; and although the author supplies a formula for ascertaining the amount of solid matters excreted (p. 13), he does not make use of the knowledge thus obtained in his semeiology. PETTENKOFER's test for bile acids, being practically unimportant, might with propriety have been omitted, where brevity is the chief aim. A few other slight redundancies might be found. But so far as a careful perusal has revealed to us, there are no errors in the book, which we, therefore, recommend as a useful students' text-book.

G. B.

Extracts from Current Medical Literature.

MATERIA MEDICA AND THERAPEUTICS.

5. *Subcutaneous Injection of Morphia as an Aid in producing Chloroform Narcosis.* By Dr. C. UTERHART, Rostock.

[*Practitioner*, April, 1870; from *Deutsche Klinik*, 1869.]

Dr. UTERHART states that he first tried this method in the case of a drunkard suffering from a dislocation of the shoulder. In this man he adopted the suggestion of THIERFELDER, who suggested the subcutaneous injection of morphia in luxations as a means of producing muscular relaxation instead of chloroform. Nevertheless, although half a grain of morphia was injected, no benefit was obtained. Chloroform was therefore ultimately resorted to; and he was much surprised to find that it produced its effect without occasioning any excitement, and much more quickly than might have been expected from the known habits of the individual, and the reduction of the dislocation was speedily effected. He now made an experiment on a dog, in which animal a violent stage of excitement usually occurs when chloroform is employed, terminating in death. Between three and four grains of morphia were subcutaneously injected. The narcosis succeeded satisfactorily, and after the lapse of half an hour the animal was intentionally killed with chloroform. No stage of excitement supervened; it remained perfectly quiet, and required a large quantity to produce death, which occurred without convulsions. In some experiments made upon himself, similar results were obtained, the previous subcutaneous injection of morphia appearing to abolish the stage of excitement. He has found it most advantageous in drunkards to inject about half a grain of morphia, which should be allowed to produce its full effect before the administration of chloroform is commenced, ten minutes being usually sufficient between the two.

6. *Acetic Ether as an Anæsthetic.* By Dr. H. C. Wood, Philadelphia.

[*Trans. Coll. Phys. Philad.*, in *Amer. Journ. Med. Sc.*, July, 1869.]

Dr. WOOD, in view of the prevalent dissatisfaction with our present anæsthetics, suggests acetic ether, claiming as advantages that it is not, like most, if not all, the chlorine compounds, a

powerful depressant; it produces, at least in pigeons and rabbits, perfect unconsciousness without so much struggling as when ether is used; it is more agreeable than the latter, though apparently less active; it is safer to handle than ether by reason of its comparative non-inflammability.

7. *Hydrate of Chloral.*

2. [Editorial *British Med. Journal*. April 23, 1870.]

During the present discussion and trial of the merits of the "new remedy"—chloral—we must bear in mind that it was really discovered by LIEBIG thirty years ago, and its chemical composition ascertained. It remained, however, a chemical curiosity merely till Dr. OTTO LIEBREICH, of Berlin, in June of last year, published his investigations into its therapeutic value.

Chloral ($C^2 H Cl^3 O$) is obtained from alcohol, by substituting chlorine for part of the hydrogen in the alcohol; and then, by adding water, hydrate of chloral is produced, which is the compound therapeutically manageable. From the fact that the hydrate of chloral, on the addition of an alkali, became resolved into formic acid (uniting with the alkali) and chloroform, Dr. LIEBREICH reasoned that a similar change, effected by the alkaline fluids, might occur in the human body. He conceived the brilliant idea that chloroform might be slowly formed in the tissues by their own chemical action on the chloral. Numerous experiments were made by himself and others to put this to a practical test. The result was, that it was clearly proved that all the effects of the slow and continuous action of chloroform could be produced in animals by the administration of the hydrate of chloral; and, though DEMARQUAY and others doubt whether these symptoms are actually the result of the evolution of chloroform, the balance of the evidence yet attainable is in favor of LIEBREICH's original supposition. Dr. RICHARDSON says that "LIEBREICH's researches have shown in one decisive instance that a given chemical substance is decomposed in the living body by virtue of pure chemical change; and the symptoms produced are caused by one of the products of that decomposition." On adding chloral to blood, chloroform is produced, and can be obtained from the blood of an animal to whom chloral has been given. The symptoms are analogous to those produced by chloroform; and the order in which the brain, cord and heart are affected is the same. The heart continues to beat after the nervous centers have been overpowered. At least this is asserted by most experimenters. Though it is comparatively a short time since public attention was called to the employment of chloral, so many observers have recorded their testimony respecting it that our original intention of summarising what has been noted must be abandoned. We have not, however, advanced much further than is graphically indicated in a letter from Dr. DU BOIS REYMOND to Dr. BENCE JONES. "A grain and a half of chloral

injected under the skin of a good-sized rabbit causes it to fall into a lethargic sleep, which lasts nine or ten hours, during which it may be thrown over the back of a chair like a towel, and from which it awakens quite jolly, rubs its eyes, and asks for more carrots and potatoes." Normal, peaceful sleep is the result of its administration; and, on recovery, no ill results whatever remain behind; and in many cases the appetite has been considerably sharpened. The extent to which muscular relaxation occurs during the sleep is a very marked feature, and indicates a class of cases in which the drug may be advantageously used. One interesting physiological symptom is the decided fall of temperature—pointed out first of all by Dr. RICHARDSON, we believe. He hints that the temperature can always be lowered by the employment of a sufficient dose. Dr. RICHARDSON mentions a case of surgical fever in which the temperature fell from 100 deg. to normal. We have seen a case in which one dose reduced the temperature from 104 to 102 deg., and a second dose to 99 deg. Had the chloral been pushed it would probably have fallen more. Mr. SPENCER WELLS has seen a case in which the temperature fell from 104 to 99 degrees, after four doses of twenty grains each, at intervals of two hours. Further observations on this head would be worth recording.

With reference to the production of anæsthesia, opinions differ, but are quite capable of being reconciled. It seems certain that prolonged anæsthesia cannot be produced, except by such doses as to endanger life. Amputation of the thigh has, however, been performed without the patient feeling, and recovery has followed; but the coma was such as to give rise to serious anxiety. In some cases, hyperæsthesia is said to have been produced; but this must be very exceptional. In not a few cases, before sleep ensues, there is a period of partial intoxication and pleasurable excitement.

As an hypnotic, all observers are agreed that its influence in procuring sleep holds the first place amongst its uses. There is no evidence at present to show that any ill result whatever follows its use in any dose save such an excessive one as to procure death, which has not yet occurred. The taste of a dilute solution is stated by Dr. RICHARDSON to be rather pleasant than otherwise; but most people experience a burning sensation, referred to the epigastrium. This is especially the case if too saturated a solution be employed. Vomiting is occasionally produced by a dose; but curiously, if the dose be immediately repeated, there is no second rejection. Half a drachm in an ounce of syrup and water is a safe dose for an adult, and will require repeating, if no effect follow in half an hour. If the patient be much exhausted, this dose will quickly—in ten minutes—procure sleep. If objection be taken to the taste, double the dose can be injected by the rectum. Subcutaneous injection is practicable, but inconvenient, and liable to be followed by sores. If tried, several punctures should be made—not one only.

There is one point which we should like to see worked out, and that is, how far alcohol is antagonistic to chloral. It is admitted that those who are in the habit of taking spirits form bad subjects for chloroform; and

cases are recorded in which drunkards took very large quantities of chloral before succumbing. On the other hand, the mental exhaustion met with in delirium tremens yields very rapidly, as a rule, to chloral.

Another point that has been noted is the elevation of temperature in spite of chloral, and coincident with the recent administration of alcohol in some form. Alcohol lowers the temperature, if given by itself; but a rise of temperature seems not uncommon, if it be given to a patient under the influence of chloral. There may, however, easily be some other cause of the elevation, which further observation will render evident.

The time for which chloral may be continued seems indefinite. Dr. RICHARDSON, however, points out that the influence of the chloral on the blood, if considerable doses were repeated at short intervals, might be very detrimental; formiate of soda is formed, and the coagulating power of the blood is much diminished. In the March number of the *Practitioner*, Dr. REYNOLDS records the case of a lady of middle age to whom doses of chloral had been given for two days for neuralgia, with good effect. On the third day, a dose of forty-five to fifty grains was given, and relief from pain followed. In the course of an hour, however, faintness came on, and increased to an alarming degree. Two hours after the dose she had cold extremities; a rapid, weak, irregular, intermittent pulse; jactitation of limbs; an intolerable sense of sinking and oppression at the pit of the stomach; gasping breathing, and confusion of thought. The pulsations of the distal arteries were as above described; but the heart was acting regularly, though with increased frequency. Stimulants and white of egg were administered, with the effect of rallying her. About four hours after the dose of chloral, a second attack of faintness, weak, frequent pulse, oppression, dyspnoea, etc., occurred. Recourse was again had to stimulants and white of egg, and the patient again rallied. It was clear in this case that the heart was the last affected, and therefore in accordance with previous observations. Dr. RICHARDSON says that dangerous decomposition of the blood may occur before coma is produced; and the symptoms in the case were such as would occur if blood were lost. Dr. REYNOLDS calls attention to the fact that he found white of egg more efficacious than stimulants. In the April number is a note of the case of a child, three years and a half old, to whom doses of four grains were given for seven nights with benefit. On the eighth night no chloral was given, and the child was seized with faintness and symptoms similar to those in Dr. REYNOLDS's case. The administration of food was followed by recovery. No more chloral was given; but, again, on the third night similar symptoms recurred, and again yielded to the administration of food. It would seem necessary to supply to the full extent the longing for food often expressed by patients. Any cases in which chloral definitely disagrees would be well worthy of note.

Tetanus.—There is no doubt that chloral will produce muscular relaxation, and add to the patient's comfort, but there is no reason to suppose that it exercises any curative effect.

Delirium Tremens.—The result in cases of delirium tremens has been generally very satisfactory; but the dose required varies very much.

Chloral has been tried in numerous other affections—whooping-cough; convulsions, epileptic or otherwise; chorea; neuralgia, etc., with more or less benefit. In maniacal paroxysms, its influence has been very marked. In asthma great relief has followed its use. It is said to relieve the gastric irritation met with in gout, etc. It has allayed vomiting. In puerperal mania it is reported well of. To relieve pain from the tension of inflamed parts chloral will probably be very efficacious.

S. *Use of Chloral in Phthisis.* By Prof. J. H. BENNETT, M.D., etc., Edinburgh.

[*Practitioner*, May, 1870, p. 262.]

Dr. BENNETT recommends chloral as a most useful hypnotic in phthisis, to take the place of opiates, etc., because "it produces no excitement or uneasiness, nor is it followed by headache, furred tongue, or feeling of depression," like the last-named remedies, which he never gives, therefore, except in the last stages of the disease, when all hope of prolonging life has ceased. Some special observations on this point by himself and colleagues he has tabulated, with the following results:

I think it will be admitted that no kind of opiate would have produced such uniformly good, and so few bad results in twenty-one cases of phthisis, as is here shown to have been the effects of chloral. In three cases the individuals slept well habitually, and the remedy only intensified sleep without affecting the head, tongue or appetite. In one case it caused vomiting twice, when taken with cod-liver oil, but when dissociated from it produced no ill effect. In one case, in addition to cough and restlessness at night, there was considerable sweating, which was much alleviated by the chloral. To assure myself of this fact, it was given ten nights running, always producing good effects, and when stopped the sweating again increased. In one case it produced excitement and a state approaching delirium, but the dose was thirty grains. In one case the same dose caused slight headache in the morning. In one case also the tongue was more furred afterwards. In all the other cases the relief to the cough and restlessness at night, with the production of sound sleep, was most marked, while the head, tongue and appetite were in no way affected.

In the same paper, Dr. B. asserts the antagonism between chloral and calabar bean, as proved by experiments on rabbits.

9. *Recrystallized Chloral Hydrate.*

[*Boston Med. and Surg. Journ.*, July 7, 1870.]

Messrs. A. and M. ZIMMERMANN, London, write as follows to the editor of the *Medical Times and Gazette*:

"Many complaints of imperfect and unreliable effects of chloral hydrate having been noticed in its therapeutical application, a natural doubt has been cast upon the very numerous preparations which, tempted by profitable prices, have for some time made their appearance in the chemical market. Dr. LIEBREICH has succeeded in obtaining a form of chloral hydrate in transparent crystals, somewhat of the average size of fine Epsom salt crystals; and in introducing this article into the English market, we need not draw the attention of the scientific chemist to the self-evidence of its chemical superiority and purity, but simply wish to observe to the medical profession that this is the only reliable form for the regulation of the exact dose. The difference in price is comparatively nothing—not exceeding, at most, 3d. per ounce."

10. *On Apomorphia.* By F. M. PIERCE, M.D., L.R.C.P.L.
[*British Medical Journal*, Feb. 26, 1870.]

In the present communication, my object is to draw attention to the valuable properties possessed by apomorphia. By the kindness of my friend Mr. C. R. WRIGHT, B.Sc., I was enabled, soon after the discovery of apomorphia by Messrs. MATTHIESSEN and WRIGHT, to make some investigations into its value in practical medicine. A detailed account of apomorphia will be found in the *Proceedings of the Royal Society* for 1869. It may suffice here to state that apomorphia is obtained by subjecting morphia to the continued action of pure hydrochloric acid at a high temperature for several hours. The base can be obtained from the resulting hydrochlorate of apomorphia, by dissolving in water, adding excess of bicarbonate of soda, and extracting with ether or chloroform. In composition, apomorphia is morphia *minus* an atom of water. In its chemical reaction, it is in nearly all respects different from morphia. It is soluble in cold, and to a greater extent in warm, water. In powder, it is of a snow-white color. The watery solution is colorless at first, rapidly changing to a dark olive-green, and, at the end of a few weeks, almost black. The cause of this evident decomposition is at present *sub judice*. Morphia is not reproduced. The physiological effects of the colored solution are the same, to a slightly diminished extent, as of the fresh preparation, but rather more irritating to the skin. An increase of the dose is, therefore, required on repetition.

Briefly to indicate its therapeutic value, the chief character of the drug—its power of producing vomiting—was noticed to a very disagreeable extent during its preparation. Its absorption through the cutaneous surface produced in the manipulators lassitude, weakness, frequent headache, constant nausea, and occasional sudden attacks of vomiting. From some experiments made by Dr. GEE, one-tenth of a grain was considered the average dose for an adult. I have found this too large, whether of a fresh or an old solution. The desired effect is readily obtained with one-fifteenth of a grain, or less; vomiting occurring in from five to twelve minutes, and the subsequent depression being slight and of short duration.

The solution which I have generally used consisted of a grain of hydrochlorate of apomorphia (the base being very unstable), dissolved in two hundred minims of water. Five minims of this preparation, or one-fortieth of a grain, was the dose generally administered to children, to whom I have frequently given it as an emetic. In nearly all the cases, it was administered subcutaneously. In private practice, the hypodermic use of drugs may appear a little formidable; but the more complete control of a drug thus acquired will probably in time out-balance the objections to this method.

In illustration of the action of apomorphia, I append one case:

W. B., æt. 8, residing at Kingston-on-Thames, came under my notice, suffering from well marked chorea. He was an intelligent, well-made boy, of sanguine temperament, the youngest of three. His father died of some strumous affection. The mother works much at her needle; she is nervous, but healthy. The patient's symptoms followed a severe scald of the chest when five years of age. At first, he was simply considered fidgety. Four months before I saw him, he had rheumatic fever. The twitches had increased very much since. The parts most affected were the muscles of the face, especially of the mouth (he could not protrude the tongue readily, nor keep it still when protruded), the muscles of the neck, arms, and trunk. The legs were least affected. A slight systolic *bruit* was audible at the apex of the heart. He had no worms. Three days after I first saw him, I injected one-fortieth of a grain of hydrochlorate of apomorphia into the left arm. The pulse before the injection was 70, regular, weak; temperature and pupils normal. He did not complain of approaching nausea, but suddenly vomited at the expiration of six minutes and a half; and, fifteen minutes later, he again vomited. The pulse, nine minutes after the first vomit, was 100, weak; the temperature was not affected to any noteworthy extent. He felt a very slight drowsiness, lasting only a few minutes. He did not sleep, but returned to play. The involuntary movements were markedly better next day; they were less sudden, frequent, and complete. He could stand for two or three minutes almost quiet. At the end of three days, during which period his improvement was maintained, the fortieth of a grain of apomorphia was again injected. Previously to injection, the pulse was noted as being 76, irregular, weak; the temperature 98.9; the pupils normal. The muscles of the neck and left arm were still very much affected. Vomiting ensued, with premonitory symptoms, in fifteen minutes. The pulse was 88; the temperature-variation unimportant. The pupils were slightly dilated. He did not feel any sleepiness, and, after a few minutes' rest, felt quite well. The chorea was much diminished after this; and, ten days later, I injected one-thirty-third of a grain in the arm. The pulse was previously noted 80, regular; pupils normal; etc. Vomiting occurred suddenly at the end of ten minutes; the pulse counting 90; the pupils dilated a little. He was discharged quite recovered soon afterwards, not having had any chronic movements for the last eight or nine days. No other treatment was adopted.

In two other cases of chorea, the action of apomorphia was beneficial,

though not as distinctly as in the above case, and, indeed, not more so than many of the vaunted remedies for chorea. It does not seem to have any specific action. It is only as an emetic that I would draw attention to it. With this object, I have used it at the commencement of pneumonia; to relieve the throat of exudation in diphtheria; in scarlatina, etc.; in cases of poisoning; and in drunkenness. As an emetic, it is depressant, but not to a dangerous extent. Though, in the example given, slight drowsiness was observed on one occasion after its use, it has not been a constant accompaniment, but the exception. The feebler the preparation, the less this was noticed. In both adults and children, with a dose not exceeding one-fifteenth of a grain, very slight inconvenience followed. The alterations of the temperature and respiration were so slight that they may be disregarded. The pulse was not peculiarly affected. The pupils were generally a little dilated. No action on the bowels or kidneys was observed.

Apomorphia is peculiar in the sudden accession of the vomit. The usual premonitory signs and symptoms are wanting, or all but coincident with the expulsive effort. The first attack of vomiting is sometimes succeeded by another, after a few minutes' interval, the patient quickly recovering from the temporary disturbance. Most frequently, the single vomit is short and final.

The occasional occurrence of sudden vomiting after the administration of morphia, subcutaneously or by mouth, may perhaps be due to the presence of this body—apomorphia—as a product of partial decomposition. Should further investigation complete the chain of chemical analysis and synthesis of the morphia salts, some very instructive chemical and physiological results may be obtained.

In conclusion: as an emetic, apomorphia is pre-eminent in the smallness of the dose required; the certainty, rapidity, and completeness of its action; the unimportance of its baneful effects; and its non-irritating character. It contrasts most favorably with the old-fashioned emetics. The only drawback at present is its costliness; but, no doubt, in a little time it will, as well as chloral, come within the reach of the most economical practitioner.

11. *New Remedy for Ague.* By Dr. F. LORINSER.

[*Practitioner*, Dec., 1869; from *Centralblatt f. d. med. Wiss.*, Oct. 2.]

M. F. LORINSER states that the agreeably smelling leaves of *Eucalyptus globulif.* may be employed with great success in the treatment of the marsh fevers of Spain and Portugal. The plant is a native of New Holland, and belongs to the family of the Myrtaceæ. M. LORINSER cultivated a few specimens and prepared an alcoholic extract of the fresh young leaves (℥ ij of the leaves to ℥vj of alcohol). Two teaspoonfuls of the tincture given either with or without a purge, before the attack, invariably shortened it and prevented a relapse. The possibility of cultivating it, and its pleasant flavor, render its introduction into practice not improbable.

12. *On the Use of Extract of Calabar Bean in Atonic Conditions of Intestinal Canal.* By Dr. VICTOR SUBBOTIN, Kiew.

[*Deutsches Archiv f. klin. Medicin*, VI, p. 285, 1869.]

Dr. S. refers to the common result of physiological investigations concerning calabar bean (by BAUER, v. BEZOLD, GÖTZ, and many others), viz. : that calabar is a very powerful stimulant to the nervous apparatus of all those organs provided with smooth muscular fibres, as well as of the heart. (That the calabar poison stimulates the nerve centres, and not the muscular fibres themselves, or the peripheric endings of nerve fibres, is proved by the fact that the contraction of the vascular walls, e. g., does not take place when their muscular elements have been disconnected from the central ganglia in the brain by division of the nerves.)

This experience Dr. S. sought to apply to the treatment of disease. He relates a case of impacted fæces, forming a tumor of considerable size in the right inguinal region, which had been mistaken for a tumor of the genital apparatus of the woman (æt. 38), probably ovarian. The author's diagnosis proved correct, as the tumor was finally caused to disappear by the use of pills of aloes and rhubarb, and cold water enemata. But two months afterwards the patient returned, the tumor had reappeared at the former locality, and was growing rapidly in spite of the increased use of the former remedies. It had grown to be larger than the first time, elongated in form, corresponding to the shape of the ascending colon. As it was now clear that the tumor had a distinct relation to the atonic state of the intestinal walls, and probably resulted from a renewed catarrh of the colon, the author resolved to administer the extr. physostigmatis.* He prescribed 1-8 grain four times a day, dissolved in glycerine. Under the use of this remedy the tumor disappeared in about two weeks, the patient having taken 8 grains in all. The cure was permanent, health remaining undisturbed for two years. The excellent effect of the calabar bean was evident in this case.

Dr. S. alludes to a case of tetanus published by WATSON, which was treated with the physostigma, and in the report of which the latter author states, that an obstinate constipation

* The Russian Pharmacopœia prescribes a solid extract of "soft consistence."—ED. ST. L. M. & S. J.

which had withstood even very powerful cathartics, now (after the use of the tincture of calabar bean) yielded readily.

Subsequently the author had the opportunity of witnessing the successful effect of the calabar bean in two other cases of atony of the intestine, and recently in a protracted case of chronic bronchial catarrh with great dyspnoea and difficult expectoration of very tenacious and copious sputa, in which atony of the bronchial walls was quite probable.

G. B.

13. *Belladonna as an Aperient in Constipation.* By F. B. NUNNELLY, M.D.

[*Practitioner*, April, 1870, p. 217.]

Adverting to the frequency of constipation and the abuse of purgatives, the author offers a few remarks

—on its *medicinal* treatment by means of belladonna, from observations made, for the most part, on patients of the York Dispensary, where I gave it to nearly all who suffered from constipation, simply to restore the natural action of the bowels, and not to cause a flow of secretion from the intestinal mucous membrane. The method followed was, in the main, that recommended by TROUSSEAU. Extract of belladonna was given in doses of gr. 1-6 to gr. 2-3 on rising every morning. A grain of the extract and gr. iij. of the ext. gentianæ were divided into six pills, and one to four prescribed for a dose.

. . . Belladonna in the usual dose of gr. 1-6 to gr. 1-2 produced no dryness of the throat, or dilatation of the pupil, but presented the following advantages over ordinary purgatives: It did not gripe, but gave usually a healthy, solid stool; increased constipation did not follow its use, and it very often restored the natural action of the bowels, so as to render a recurrence to this or other aperient unnecessary. Another and important advantage is the small bulk in which the remedy can be given.

14. *On Drastics.* By Dr. H. KÖHLER, Lecturer on Pharmacy and Toxicology, Univ. of Halle.

[*Virchow's Archiv*, Vol. L, p. 388, June 27, 1870.]

At the close of a lengthy memoir on the juice of *momordica elaterium*, in which he discovered that the drastic effect of the active resin "elaterin" is dependent upon the presence of bile in the intestinal canal, and acts, after being dissolved by bile or cholates, by local irritation of the mucous coat of the intestine,—the author gives his classification of drastic irritants as follows:

1. Those whose action is independent of the presence of bile in the intestinal contents; among them aloes, croton oil, and drugs containing cathartic acid, as rhubarb, senna, rhamnus, gratiola.

2. Those whose effect upon the intestine depends on the presence of bile in the latter, and which possess

a, only a local action, consisting in irritation of the mucous membrane by their resinous constituents dissolved in bile—and to this class belong jalap, scammony, gamboge, agaric,—or have,

b, in addition to the above, remote effects upon the nervous system, which are caused by the entrance of the remedy into the blood, and take place independently of the local (purgative) action. This group seems to be confined to the drastics from the family of *Cucurbitaceæ*: elaterium, colocynth, bryonia.

G. B.

15. *Iodized Milk.*

[*Practitioner*, Nov. 1869, from *Prakt. Arzt*, Aug.]

This is a preparation which contains iodine in a state of such intimate combination that its presence can be detected neither by the taste, smell, nor by the eye. The activity of the drug when in this state of solution is diminished, apparently because it is in combination with the protein-corpuscles of the milk, and as much as five times the amount may be administered that is ordinarily given of the solid substance. The greater part—two-fifths—of the iodine consumed in the form of iodized milk is again discoverable in the urine. HAGER states that iodized milk appears to him to be the mildest form in which it can be given, being superior in this respect even to iodized starch. He found that milk could be taken, containing from half a grain to as much as four grains, at one dose, without occasioning the least inconvenience. If the tincture of iodine be added to milk drop by drop, the milk quickly assumes a yellow color; but it is only requisite to warm the fluid slightly and to agitate it gently to cause the iodine, which at first is to some extent precipitated, to be redissolved. Iodized milk possesses the advantage of being capable of keeping for a week before it acidifies or spoils; the cream which arises to the surface can be again equably diffused through the milk by agitation. The mode of prescribing it is as follows:

R. Lactis vaccini opt. ℥ iij.

in vas vitreum vel porcellaneum ingestis et paulum calefactis sensim atque inter lenem agitationem affunde

Iodi puri, gran. 15,

antea leniore calore solutis in

Spiritus vini rect. ℥ iij.

Mistura leniter agitetur, donec denuo albißima appareat.

A teaspoonful contains about one grain of iodine.

16. *Mode of Administering Creosote.*

[*Practitioner*, December, 1869.]

As creosote is now frequently employed in the treatment of typhoid fever, and is exceedingly distasteful to some patients, it may be worth while to mention here a formula which in great measure covers its flavor, and is easily prepared :—

Creosote, 3 drops.
Essence of lemon, 2 drops.
Orange-flower water, 1 ounce.
Spring water, 3 ounces.

A spoonful to be taken at frequent intervals throughout the day.

DERMATOLOGY.

1. *On Molluscum Contagiosum.* By Prof. EBERT, Berlin.

[*Archiv f. Dermatologie u. Syph.*, II, p. 86, 1870.]

In the section for Diseases of Children of the late Meeting of Physicians at Innsbruck (1869), EBERT related the history of a case of molluscum contagiosum. In a girl æt. 14, tumors of the size of lentils had gradually developed on the eye-lids, and then in the entire face, so that at the time of her admission to hospital 108 of them were present in the face. They increased to the size of hazel or walnuts, and were so densely grouped on the eye-lids that they perished by necrosis from pressure. In the center of each tumor could be discovered a dark punctiform opening, from which uniformly applied peripheral pressure would express a tallow-like plug, made up essentially, according to VIRCHOW, of epidermoid proliferations, similar to cancrroid. The disease spread to three children who occupied the nearest beds and came in contact with each other more particularly.

Inoculation upon a dog, as well as a subsequent one upon the author himself, gave negative results. G. B.

2. *On the Specificity of Varicellæ.* By Dr. BOLZE, Prague.

[*Arch. f. Derm. u. Syph.*, I, p. 318, 1869.]

Dr. B. treated a boy æt. 9 affected with varicellæ. A sister of the patient, who nursed the latter with great care, remained

unaffected, but was delivered, eight days after the recovery of the boy, of a male child whose skin was covered with innumerable papulæ. These developed into perfect umbilicated pustules, and the infant died during the acme of the suppurating process.

Here was a case of variola in the child proceeding from vari-cella which had not affected the mother. G. B.

3. *A Peculiar Affection of the Hair-Follicles and Sebaceous Glands, Sequela of Variola.* By Dr. I. NEUMANN, Vienna.

[*Wien. Med. Presse*, No. 37, 1869.]

Dr. N. describes a disease of the hair follicles and sebaceous glands of the face, especially the nose, following an attack of small-pox, and causing considerable disfiguration. After the scabs have fallen off there appear wart-shaped excrescences with the mouths of the hair-follicles and glands upon them, at first pale, afterwards of a dirty-brown color. They have been described under the name of *variola verrucosa*. Dr. N. supposes them to arise from hypersecretion in the glands during the inflammatory process of the skin, when the secretion is prevented from escaping by mechanical obstruction by the scab which covers the mouth of the follicle. After the removal of the scab these protuberances increase for a few days, because the pressure of the scab is taken off, then gradually diminish and finally disappear. They disfigure the face for weeks and months after the recovery from small-pox. Sometimes, however, they lead to an inflammatory seborrhœa, which may remain for years unless removed by art.

These cases sometimes give rise to an eruption of acne, or very rarely to lupus erythematodes. Sometimes, also, they give origin to larger reddish warts, not unlike the gonorrhœal warts. These little tumors contain in their interior a small cavity filled with dark-brown, crumbling masses of sebum. They occur only after severe cases of small-pox, and effect considerable disfiguration of the nose.

The treatment should be the same as that of seborrhœa and acne. G. B.

4. *Pathology of "Lichen Scrophulosorum."* By Dr. M. KOHN.

[*Arch. f. Derm. u. Syph.*, I, p. 288, 1869; from *Sitzgb. d. Wiener Akad.*]

The process of *lichen scrophulosorum* consists in an exudation

of cells into and around the hair follicles and their sebaceous glands, as well as the papillæ surrounding the mouths of the follicles.

The exudation begins at the base of the follicle and gland, i. e., from the vessels passing from the subcutaneous tissue to the parts mentioned.

It is manifested under the microscope by a collection of exudation cells, at first around the vessels named and among the connective-tissue fibres accompanying them, and surrounding the base of the follicle and the wall of the sebaceous gland. The process advances by accumulation of a great number of such cells around as well as within the follicle and gland of the hair, by loosening of the cells of the root-sheath of the hair from the wall of the sebaceous gland, and cell-infiltration into the adjacent papillæ.

The infiltration of these papillæ with cells and serum causes them to swell and redden, whereby they become visible and palpable as nodules of characteristic properties, with a central depression corresponding to the follicular mouth. The accumulation of epidermis in the dilated mouth of the hair sac forms the central scale of the papule; the collection of serum under the superficial cell strata forms the central vesicle or pustule.

The process recedes by molecular breaking-down and absorption of the exudation cells, when the follicles, sebaceous glands and papillæ return to their normal condition; or else the cells, especially in the center, break down, giving rise to a small abscess, in consequence of which the root-sheath is separated from the shaft of the hair, its cells also decay, the hair falls out, the fibres of the follicle undergo mucous degeneration, the follicle itself wastes, the papillæ around it become atrophic, and thus a level cicatrix replaces the lichen nodule.

G. B.

5. *Tinea Circinata* (*Ringworm*). By Dr. TILBURY FOX, London.

[*London Lancet*, Jan., 1870.]

A more constant use of the microscope in the diagnosis of cutaneous disease would land the practitioner clear of many errors, especially in reference to the discrimination of the exact nature and cause of eruptions that are mainly characterized, so far as naked-eye appearances are concerned, by "furfuraceous" desquamation. We are led to this remark by noticing how much stress is laid in diagnosis upon the microscopic

appearance of scales, crusts, and discharges in disease amongst out-patients in the Skin Department of University College Hospital: whether, for instance, these be composed merely of epithelial, fatty, blastematosous, or fungoid elements, or an intermingling of these morbid products in various proportions. The appearances presented in certain cases of lepra, chronic eczema, herpes circinatus, seborrhœa, tinea circinata, etc., which approximate in external aspect, are often such—in the absence or presence, for instance, of true inflammatory products—as to lead to the individual recognition of these diseases.

There is one particular class of cases in which the presence and influence of fungi, according to Dr. TILBURY FOX, is almost entirely, if not quite, overlooked. It is that—and few practitioners in private practice, and fewer still amongst those who have charge of schools, can be unacquainted with it—in which the eruption is very slightly raised, slightly rough to the feel, and slightly scaly or “scurfy,” the eruption occurring in patches of a generally circular form of varying size about the face and neck of children especially, and running a chronic course. Patches may crop up from time to time about the body, and there may be well-marked patches of “ringworm” elsewhere. The disease to which reference is now made is usually called “dry eczema,” or “pityriasis;” but Dr. Fox has long declared it to be parasitic, and included it under the term *tinea circinata*, which has now been adopted by the College of Physicians in its new nomenclature as the term for ringworm of the general surface of the body. Several children of the same family may be brought at the same time suffering from the so-called “dry eczema.”

There is another unusual form of *tinea circinata* in which the parasitic growth produces considerable irritation, and patches covered by slight crusts, and looking much like eczema, are formed. These patches are large, circular, well defined, and itch a good deal. Hence *tinea circinata* varies according to the degree of irritation produced by the parasitic growth. Simple (non-parasitic) herpes circinatus is, of course, a disease of short and definable duration.

The fungi in many cases of *tinea circinata* are readily missed if the examination be hurried, if any but the thinnest portions of scale be taken, and if the tissues under the microscope be not rendered transparent with reagents.

The following are the features which point to the parasitic nature of the slighter form of *tinea circinata*:

1. It is a primary form of disease; pityriasis is often secondary to eczema, etc.
2. The form is circular.
3. Two or more members of a family or school are affected.
4. Parasitic elements are detectible together with the products of slight inflammation.
5. The disease is not of short and definite duration, but chronic, and may last a long time.
6. There may be on other parts of the body well-marked circular patches of *tinea circinata*, or on the head *tinea tonsurans*.

Many of these points are exemplified in the following case :

A little girl presented herself a few weeks since with a slightly roughened circular patch, like pityriasis, on the face; there was a second patch over the left eyebrow, involving the outer half of the eyebrow itself; and here the hairs were broken off, and changed exactly as in *tinea tonsurans* of the scalp. A sister was affected with *tinea circinata*. The microscopic appearances of the two distinct patches are represented on the foregoing page.

This case seems to show that under the term *tinea circinata* we must rank cases of parasitic pityriasis, as well as so-called parasitic herpes circinatus, and other cases which approximate eczema in appearance, according as the irritation produced by the parasitic growth is great. It also explains the difference between ringworms of the surface and *tinea tonsurans* as one of seat; in the one case the hairy parts are affected, in the other the hairs are few, and the epithelial scales are mainly diseased.

The treatment of *tinea circinata* by ordinary parasiticides is easy when once a correct diagnosis is made.

6. *Favus primarily developed on the Glans Penis.* By Dr. F. J. PICK, Prag.

[*Arch. f. Derm. u. Syph.*, I, p. 302, 1869.]

The author relates a case of favus on the glans and in the coronary sulcus. Scutula were present only in the localities named, while the closest inspection from head to heel detected none upon the rest of the body. On the inner side of the thigh, however, near the root of the penis and scrotum, were several red spots of the size of small coins, bounded by a circle of small nodules and vesicular efflorescences, and covered with scales and crusts; *i. e.*, the herpetic preliminary stage of favus. Corresponding spots on the scrotum presented the same picture.

The author searched carefully for the presence of little hairs on the glans or in the sulcus, but none could be detected—another proof, he points out, that the development of the fungus of favus is not confined to localities where hairs exist, as erroneously stated by many authors, and especially by BAZIN.

7. *Treatment of Itch by Balsam of Peru.*

[*Edinburgh Med. Journal*, May, 1870.]

In itch, styrax has been recently strongly recommended, as was formerly stated in this Journal; more recently the balsam of Peru has been said to be equally successful, and from its liquidity more readily applied. It is more expensive than styrax, but, from less being required, it is

actually a cheaper remedy. No hospital treatment for such cases is now required; the patient is stripped and well and carefully rubbed over with Peru balsam from crown to heel, avoiding the production of abrasions. It soaks into the galleries and eggs, and kills everything on the body within an hour. A second rubbing, ten days after, destroys any stray animalculæ or products of eggs that may by chance have been in the clothes at the first rubbing, and thus does away with any need for baking or otherwise disinfecting the clothes.

8. *On the Use of Arsenic in Affections of the Skin.* By Dr. MCCALL ANDERSON, Prof. of the Practice of Medicine in Anderson's University, etc.

[*Lancet*, Aug., 1870, p. 416.]

There is much difference of opinion as to the use of arsenic; and while I am altogether opposed to those who are inclined to disparage its virtues, I am equally opposed to the view that almost all affections of the skin should be treated by means of it. At the present time I must content myself with a very few remarks, which, for the sake of brevity, I make in the form of aphorisms:

1. Arsenic, judiciously administered, is as safe a medicine as any in the Pharmacopœia, and may often be continued for months without injury to the general health.

2. It often requires to be continued for many weeks, and sometimes the disease seems to resist its action for a considerable time, when all of a sudden improvement occurs, followed by a rapid cure.

3. It requires to be given in proportionately larger doses to children than to adults.

4. Infants may be subjected to its influence by administering it to their nurses.

5. The dose should be at first small, and not increased, as a rule, for some time. Then it may be gradually increased till the medicine disagrees, or till the disease begins to yield, when it may as gradually be diminished.

6. It should not be omitted altogether without very good reason, but may be tried in smaller doses or in another form, or omitted for a few days till the bad effects have passed off.

7. Puffiness of the face, or irritation of the eyes, or such-like physiological effects, if slight in degree, should not lead us to discontinue the medicine; indeed, it is sometimes only then that its beneficial action on the disease is observed.

8. It is decidedly contra-indicated in acute cases; and when its use is followed by marked increase of the irritation of the skin—itching, heat, etc.—the disease is probably not in a state to be benefitted by it.

9. It is generally more rapidly effectual if the disease, though in a chronic state, is recent; and the first attacks yield more readily to it than subsequent ones, as a rule.

10. It is contra-indicated in most cases which are complicated with digestive derangement.

11. It is apt to produce bronchial catarrh, so that patients should be warned to avoid exposure to cold while taking it; and for this reason it is generally contra-indicated in persons laboring under bronchitis.

12. In exceptional cases it may be given with benefit in large doses, as in the following case:

On May 11th, 1861, I was sent for to the country for the purpose of seeing a little girl, aged about ten, who had been suffering for about three months from a papulated eczematous eruption, principally affecting the back. When I saw her she was confined to the sofa, and at that time her whole back, from the neck to the hips, presented an enormous ulcerated surface. The ulceration was quite superficial, and presented a slightly papulated aspect. It had all the appearance of a superficial ulcer from a burn which was gradually contracting and healing at the edges. At the margin, also, papules and vesicles, containing opaque serum, were detected. Papules were likewise scattered thinly over the body, but especially on the brow. From the surface of the sore semi-purulent matter was exuding. The little girl had been able to run about till within a week of the above date, since which time she had been confined to the sofa. Her general health was, however, good, except that she had suffered a little from the confinement and the irritation of the sore.

Dr. ROBERT STEWART, of Coatbridge, saw the patient with me, and we agreed that the sore should be dressed with cod-liver oil, and Fowler's solution administered in gradually increasing doses.

I am indebted to Dr. STEWART for acquainting me with the result of the treatment. In a letter dated October 22d, 1861, he wrote: "After you saw her she commenced with two drops of Fowler's solution three times a day. Each dose was increased by a drop each day, so that latterly she was taking thirteen drops of Fowler's solution three times a day, which had the most charming effect, and produced a decided cure. Altogether she must have taken, in the course of six or seven weeks, two and a half ounces of the solution. I saw her regularly, and there never was a bad symptom."

13. It should be given during meals, or immediately after food is taken, for if administered on an empty stomach it is apt to derange the digestive organs; and it is often better tolerated if given along with a bitter infusion.

14. It should not, as a rule, be entirely discontinued until some weeks have elapsed since the complete disappearance of the eruption.

15. There are few chronic diseases of the skin of constitutional origin—provided they are not syphilitic—which may not be benefitted by it (although often other treatment is to be preferred to it), but it is especially valuable in psoriasis, pemphigus, lichen ruber, pityriasis rubra, and in many cases of eczema; unless contra-indicated as above.

The preparations which I am most in the habit of using are liquor arsenicalis (Fowler's solution), of which the medium dose for children is two, for adults five, minims thrice daily, and Asiatic pills, of which the

following is a modified formula: White arsenic, two grains; black pepper and glycyrrhiza powder, of each half a drachm; with a sufficient quantity of mucilage: divide into thirty-two pills, one to be taken two or three times a day after food.

DISEASES OF CHILDREN.

3. *On the Acid Dyspepsia of Infants.* By EUSTACE SMITH, M.D., Phys. Ext. to H. M. the King of the Belgians, Phys. to the Northwest London Free Dispensary for Sick Children, etc.

[*Amer. Journ. of Obstetrics*, Feb., 1870, p. 597.]

Acid dyspepsia is one of the commonest digestive derangements met with in young children, and few infants can be said to escape it altogether. A trifling complaint, and readily recovered from when attended to early and judiciously treated, if neglected it becomes a most serious and obstinate disorder, which may resist all treatment, and may lead to the most extreme emaciation, or even to death itself.

The food taken seems shortly after being swallowed to undergo an acid fermentation; sour gases are evolved, great discomfort is produced, and nutrition is seriously interfered with. The derangement is usually caused by overfeeding with farinaceous foods. It is too commonly the case that these foods are given in enormous quantities—in quantities greater than any infant with ordinary digestive power can by any possibility assimilate. The reason of this reckless feeding is, partly, the mistaken notion which so universally prevails of the digestibility of these foods; partly, the eagerness with which the child himself will swallow large masses of sop; for the griping and flatulence occasioned by the presence of large masses of starchy matters in the alimentary canal will—if not too severe—excite a fictitious hunger which is not easily appeased. An infant of three or four months old, in whom the secretion of saliva is but lately established, or an infant of a yet earlier age, who has no saliva at all, is often fed with a large tablespoonful of corn flour or other farinaceous powder, boiled with milk or with water, four, five, or even more times in the day. The food lies undigested in the bowels, ferments, and a state of acid indigestion is set up, which does not cease with the removal by vomiting and purging of the cause which has produced it. Even a return to a simpler diet is often insufficient by itself to put an end to the derangement; plain milk and water is vomited sour and curdled, and everything taken into the stomach seems to undergo the same acid change.

As this derangement is so easily excited by improper feeding, even in healthy infants, children whose strength has been already reduced by

disease, and whose digestive power is therefore lowered in proportion to the weakness of the whole system, are still more likely to be affected by the same cause. On this account acid dyspepsia is a not unfrequent sequel of acute disease in infants, and may, after apparent convalescence from the primary disorder, lead to death by the interference with nutrition and by the exhaustion which it so often produces. The diarrhoea, which is a not uncommon sequence of some of the acute specific diseases, as scarlatina and measles, is often primarily excited by this derangement, and is too frequently a cause of death. Severe operations upon the child, such as that for stone in the bladder, may also be followed by the same complication, for anything which lowers the easily depressed general strength reduces also the digestive power and predisposes to this complaint.

Children brought up by hand are especially liable to this acid dyspepsia, for even when fed upon a suitable diet, carelessness in the administration of the food selected, so that the stomach is overloaded by too frequent or too copious meals, or neglect of the necessary cleanliness, so that they are allowed to take milk which by being put into a sour bottle has already begun to change, will excite this indigestion. Amongst the poor of London it is not uncommon to find a child brought for medical advice sucking at a feeding bottle, of which the intensely sour smell at once discloses the cause and suggests means for the relief of the complaint under which he is laboring.

The earliest symptoms of this derangement are due to the uneasiness produced by flatulent distention and griping pains. The infant is restless and fretful, whining and crying and refusing to be pacified. Large quantities of gas are evacuated both by the mouth and by the rectum, affording at first some relief, and the child becomes quieter until a reaccumulation takes place. At night the griping is exceedingly distressing, and his sleeplessness at this time, by the discomfort it occasions to his attendants, is usually the symptom which assumes the greatest prominence in the mind of the mother, and is the chief reason for applying for advice. The infant, after lying for a time in uneasy sleep, starting, twitching, moaning, frowning, and drawing up the corners of his mouth, suddenly wakes up with a loud cry, and is seized with a fit of violent screaming which resists all efforts to calm him. He throws himself from side to side, jerks about his lower limbs, or suddenly straightening them out in a line with his body, becomes for a few moments rigid as if turned into stone. These attacks of colic are sometimes so severe as to cause great alarm; the child falling into a state of collapse, or being thrown into convulsions, which may be repeated again and again. The ravenous appetite noticed in children suffering from flatulence has already been referred to. This symptom usually disappears as the derangement becomes more marked. Vomiting comes on after a time, the appetite then fails, and the child is thirsty and feverish. Vomiting is at first excited by taking food, but may afterwards occur when no food has been lately taken, and in bad cases may be caused by a sudden movement, or even by a touch, as in wiping the mouth. The vomited matters consist

at first of food and curdled milk, afterwards of clear fluid like water; the smell is usually intensely sour. The bowels at first are confined, but after a time diarrhœa comes on, the motions being either pale, frothy, and sour-smelling, or watery and fetic. There may be straining during the passage of a stool, in which case the motions may contain streaks of blood. An eruption of red strophulus, covering the body and arms of the child, is a not uncommon symptom; it may be mixed with urticaria.

An infant suffering from this derangement soon becomes pale and thin. His face assumes a constant expression of fretfulness, which is increased by the furrow which appears, passing on each side from the nose, to encircle the corner of the mouth. The lower eyelid and upper lip are disposed to be livid; the lips twitch, and the corners of the month are frequently drawn up, giving a peculiarly plaintive and helpless expression to the face. The fontanelle is depressed more or less deeply, according to the degree to which the strength is reduced. The eyes sometimes assume a fixed stare, while the muscles of the face twitch, and the thumbs are drawn inwards upon the palms of the hands. These nervous symptoms—well known to nurses by the name of inward fits—are of importance, as being sometimes the forerunners of convulsions. The tongue is at first covered with white fur, through which red papillæ project; afterwards it is apt to become pale and clean, or with little patches of fur scattered here and there over the dorsum. In bad cases the whole body has an offensively sour smell. This smell proceeds not only from the breath, but from acidity of all the secretions; the saliva, the perspiration, and the urine being all intensely acid. The cutaneous secretion is, however, seldom in excess; more usually the skin is dry, and is in consequence harsh and rough to the feel, especially at the backs of the arms and the belly. The feet are generally cold, and the child lies with the knees drawn up to the abdomen. The coldness of the feet is no doubt one cause of the griping pains which are so constant in this derangement, for even in healthy infants abdominal pains are frequently excited by coldness of the feet, and cease when these are warmed. During the earlier periods of this disorder the complexion turns slightly yellow from time to time, the yellow tint remaining for some hours or days. Occasionally the skin becomes completely jaundiced. After the complaint has existed for some time a peculiar earthy tint is noticed of the face and whole body, which is very characteristic of chronic derangement.

If the disorder is primary, and is not soon arrested, a chronic catarrh of the stomach is often set up, the bowels becoming obstinately confined, and the vomiting continuing as a persistent condition. In other cases, again, the derangement may settle principally upon the bowels, leading to a chronic diarrhœa. The most extreme emaciation is often reached through these means, and it may be only after weeks, or even months, of illness that a termination by recovery or by death is arrived at.

When the disorder is secondary to some acute disease, or follows a serious operation, the strength is usually so much reduced by the original illness that the child, weakened more and more by the vomiting and diarrhœa, and by his inability to digest any nourishment whatever, soon

becomes exhausted. Thrush appears upon the inside of the mouth, and the child sinks and dies. Pneumonia is a not uncommon complication in the latter stages of the disease, and, if the strength be much reduced, may exist without manifesting its presence by any of the usual symptoms. There is no cough, and the heat of the body is not appreciably heightened, or if heightened at first the elevation of temperature soon passes off. This pneumonia usually attacks the bases of both lungs.

The earlier treatment is commenced in this derangement the more readily will the complaint be arrested, for as the strength becomes more and more reduced, and the stomach and bowels become more and more disordered, treatment which in an early stage would be at once attended by improvement loses much of its efficacy, and great difficulty is experienced in making any impression upon the disease.

When the case is seen early, and the symptoms complained of are merely griping and flatulence, with ravenous appetite, unaccompanied by sickness or diarrhœa, careful inquiry should at once be made into the diet and general management of the infant. It should be explained to the parents that the appetite will best be satisfied, not by increasing the quantity of farinaceous matter and the frequency of the meals, but by carefully adapting the food supplied, both in quality and quantity, to the digestive power of the child, so that the nourishment given may be only such as the stomach is able to digest. This may seem a simple and self-evident proposition, but it is one which is constantly forgotten. That a child will be nourished in exact proportion to the amount of food he swallows, and that the more solid the food the greater its nutritive power, are two articles of faith so firmly settled in the minds of many mothers that it is very difficult indeed to persuade them to the contrary. To them wasting in an infant merely suggests a larger supply of more solid food—every cry means hunger, and must be quieted by an additional meal. It is difficult to lay down precise rules for diet in every case of this derangement. This is a matter which can be properly learned only by experience. There are, however, certain plain rules which should always be observed. Of these one of the most important is, that farinaceous food is unsuitable to an infant under the age of three months. Before that age he should be restricted entirely to the breast, supposing that the secretion of milk be of proper quality and be supplied in sufficient quantity. In cases, however, where additional food has to be given on account of the insufficient supply of breast-milk, recourse must be had to cow's milk, or the milk of the ass. If cow's milk be used, it should be diluted with a third part of lime-water, in order to prevent the too firm coagulation of its casein. Even, however, when thus diluted and alkalized, the cow's milk is sometimes undigested by young infants, who seem to thrive better upon the milk prepared with a very small quantity of arrowroot or baked flour. This scarcely accords with the statement made above, of the unsuitableness of such foods to young infants; but an explanation of the seeming contradiction is found in considering the action of the farinaceous food under such conditions. The arrowroot itself probably contributes little, if anything, to the nutrition of the body,

but when thus intimately mixed with the cow's milk it has a mechanical action in separating the casein into minute portions. The curd, therefore, coagulates, not in one large clot, but in a multitude of small clots, which are more readily attacked by the digestive juices. It is, however, as has already been said, always a risk to give farinaceous food to young infants, and the same object may be as readily effected, and without any danger to the child, by adding a small quantity of isinglass or common gelatine to the diluted milk in the proportion of one teaspoonful to four ounces.

In older children, brought up upon artificial food, the above symptoms are often complained of, even although the quality of the food with which they are supplied leaves nothing to be desired. In these cases it is the quantity which is the fault: the child is supplied with food largely in excess of his wants or his powers of digestion, and the stomach and bowels revolt against the burden imposed upon them. For an infant of six months old, one, or for a very robust child two, teaspoonfuls of farinaceous food, carefully prepared with milk, and given twice in the day, are as much starchy matter as he is able readily to digest. His other meals should be composed of milk and lime-water, or the milk and water with isinglass, as directed above.

The kind of farinaceous food is of some importance. Different foods vary very much in the proportion of their several constituents, and the albumen, gluten, salts, &c., they contain are to be considered quite as much as the starchy matter. The very best food is, perhaps, pure wheaten flour slowly baked in an oven till it crumbles into a light grayish powder. This, prepared with milk, and sweetened with milk sugar, forms an admirable morning and evening meal. It may be varied occasionally with other farinaceous articles, but whatever be the food selected, the quantity mentioned must not be exceeded. On alteration in the diet, in accordance with the above rules, a small dose of castor oil, or rhubarb and soda, to clear out undigested matter from the bowels, and the administration of a little bicarbonate of soda or potash, with an aromatic to neutralize any remaining acidity and promote digestion, are all the measures that are required at this stage.

If the derangement have gone on to vomiting and purging, with an intensely sour smell from the breath and from the ejected matters, other means must be resorted to. In this case the stomach and bowels are filled with the acid products of fermentation, and the vomiting and diarrhoea are merely the forcible efforts of the alimentary canal to expel its irritating contents. Sedatives to the stomach and astringents to the bowels are here out of place; we shall best cure the derangement by assisting the expulsion, and not by obstructing the exit of the fermenting food. In determining, however, the exact measures to be adopted, the state of the child's strength is an important consideration, and this is best estimated, not by the condition of the pulse, but by the degree of depression of the fontanelle. If the fontanelle is not much hollowed, a teaspoonful of Ipecacuanha wine should be at once administered, and should be repeated every ten minutes until vomiting be produced. The

acid matters in the stomach having been thus evacuated, half a teaspoonful of castor oil should be given after a short interval, to act gently on the bowels, and the child should be allowed nothing but a little cold, thin barley-water, given occasionally with a teaspoon. At the same time the belly should be kept covered with a hot linseed-meal or bran poultice, and the child, warmly wrapped up, should be kept perfectly quiet in his little cot.

If the derangement have only existed a short time, the above measures will be usually successful in checking the symptoms, and the child will be found to retain the breast-milk, or the milk and water with which he is supplied in small quantities. Any tendency to acid fermentation that may remain should be neutralized by five-grain doses of bicarbonate of soda, given three or four times a day, and the patient may be allowed to return very gradually to his ordinary diet.

When, however, the derangement is of long duration, or is secondary to a severe operation or to some acute disease, the symptoms are not so easily overcome. Here the weakness, as shown by the depressed fontanelle, will not allow very active measures to be employed, and therefore the accomplishment of our twofold object, viz., of removing already formed acid from the system, and of preventing further fermentation, requires the most careful management. Emetics are here out of the question, for the strength will not bear further reduction, and the administration of such a remedy would be attended by the greatest danger. Our first care should be to endeavor to restore the circulation to the extremities, by placing the feet as high as the knees in hot mustard and water. If the weakness be very great, the whole body may be immersed in a mustard bath as high as the neck. It is of extreme importance in such cases to restore the proper action of the skin, for it is by this means chiefly that we hope to effect the escape of acid from the system. On being removed from the bath the infant should be carefully dried: a hot linseed-meal poultice is then to be applied to the belly, and the child, well wrapped in flannel, must be returned to his cot. The warmth of the surface must be kept up by hot bottles placed by his sides, and the feet and legs should be well rubbed at intervals with the hand alone, or with a liniment composed of equal parts of compound soap liniment and the compound liniment of camphor. If the child can bear the motion, frictions with the same embrocation may be used to the whole body; but in cases where the weakness is extreme and the vomiting obstinate, violent retching may be excited by the slightest movement, so that the frictions would have to be discontinued. In such cases the feet and legs should be wrapped in hot flannels on which some flour or mustard has been sprinkled, and the most perfect quiet should be enforced. A napkin must be placed under the chin, to receive all matters ejected from the stomach, and when moistened the cloth must be immediately removed and a clean one applied in its place.

If diarrhœa exist, astringents are not to be employed so long as a sour smell from the breath and evacuations indicates the continuance of fermentation in the stomach and bowels. For a child of a year old, twenty

drops of castor oil can be administered, and will be usually kept down. After its action a simple chalk mixture may be given, or a draught containing five grains of bicarbonate of soda, with three grains of nitrate of potash, in some aromatic water, three or four times in the day. Half a drop of tincture of capsicum is a valuable addition to each dose of this mixture.

If there is constipation, the bowels must be opened by an enema containing castor oil, and be kept in regular action by the occasional administration, as required, of one or two drops of a solution of podophyllin in alcohol (a grain to the drachm), or by suppositories of castile soap placed in the rectum.

The form of nourishment to be given in these cases is of the utmost importance. All matters capable of undergoing fermentation must of course be excluded. Even milk itself, however diluted and alkalinized, can seldom be borne, as it is usually vomited sour and curdled immediately after being taken. Women's milk is usually well digested, but not always. In some cases it seems to agree as the milk of the cow; in others, where the irritability of the stomach is very great, the mere movement of the mouth in the act of sucking may be sufficient to excite a return of the vomiting. If this be found to occur, the breast-milk should be given with a teaspoon. In cases where a return to the breast is impracticable, or is not followed by the expected improvement, a good food is whey, made fresh as required by adding prepared rennet to cow's milk in the proportion of a teaspoonful to the pint. To two tablespoonfuls of the whey add one tablespoonful of fresh cream, and dilute with two tablespoonfuls of hot water. Of this food small quantities can be given at regular intervals, and care must be taken that it be either hot or cold, but not tepid, as liquid food given in a lukewarm state would be apt to favor a return of the vomiting. LIEBIG's food for infants, carefully prepared with freely diluted cow's milk, will often be borne; but in very bad cases it is inferior to the diet just described. In addition, the waning powers of life must be supported by five-drop doses of pale brandy, given in a teaspoonful of the food every hour, or even oftener, according to the condition of the fontanelle.

By such measures success is often attained even in the very worst cases of this derangement. The obstinate vomiting is best arrested not by sedatives, but by giving the stomach as much rest as is consistent with supporting nutrition. Of all special drugs, calomel in doses of one-eighth or one-sixth grain, laid dry on the infant's tongue, is perhaps the one which is the most generally successful; but our chief reliance should be placed on a careful diet, and on stimulating and hot applications, so as to promote the circulation and encourage the free action of the skin. The existence of cold feet alone would be a sufficient obstacle to the success of any treatment whatever.

SURGERY.

9. *The Anatomical Changes in Arteries after Ligation, Acupressure, and Torsion.* By Dr. KOCHER, Berne.

[*Archiv. f. klin. Chirurgie*, XI, 3, p. 660; 1869.]

Dr. KOCHER has published a very interesting essay on the minute anatomical changes in arteries having undergone ligation, acupressure or torsion. His observations being based on numerous experiments upon animals, and extending to amputation of stumps, are very valuable contributions to our knowledge on this subject. They certainly deserve to be studied in full.

We are not surprised that the careful research of the author in a measure rehabilitates the almost forgotten views of JONES (1805), who contended that the arterial tube was closed by inflammation, and that the thrombus had no part in its permanent closure; and of PETIT, that the organization of the thrombus was the hæmostatic elements in the arrest of arterial hæmorrhage.

It happens, however, from the careful research of the author, and in opposition to the views of Prof. BILLROTH, that the mode in which the arterial tubes are permanently closed is somewhat modified in the various operations.

In order to preclude all deception, the author has, in every instance, most carefully prepared his specimens by injecting the arteries with cyanide of potassium, suspended in glue, hardening in chromate of potash and alcohol, and at last dipping into molten paraffin and drying them so as to be enabled to make the finest sections for microscopic examinations.

The first observation comprises the two carotids of a dog which had been tied a year before. It may surprise to learn that neither of them were severed in their respective continuities, but that they were continuous by connective tissue of the same calibre as the arteries, so that it was impossible to discern the places of ligation. The thrombus was likewise converted into connective tissue and traversed by numerous vessels, which, however, had no discernible communication with the capillaries of the

arterial walls, though they approached them very closely. The said vessels commenced with open mouths at the cardiac extremity of the thrombus, and diminished in size towards the distal end.

The anatomical conditions of either artery or thrombus present a different aspect after acupression.

The views advanced by the late Prof. O. WEBER could not be sustained. That distinguished surgeon held that by acupressure as well as ligature the middle and internal coats of the artery were cut; that the needle gave rise to sloughing and an early severance of the artery. The author could adduce no instance in affirmation of those views. On the other hand, SIMPSON'S and PIRRIE'S views—that in no instance the integrity of the artery was disturbed—were subject to modification. At a microscopic inspection, including even the use of a moderate magnifying lens, no injuries to the arterial coats could be detected after successful acupressure. The microscope, however, could readily discern limited longitudinal fissures in the internal coat, and these fissures are of great importance for the permanent obstruction of the artery, inasmuch as by them an organic connection is formed between the artery and thrombus. The connection comprises both connective tissue and the vessels of the thrombus with those of the artery. The author thinks that this fact constitutes an important clinical feature in the hæmostatic action of acupressure, which is further enhanced by the flattening of the artery beyond the point of acupression, and the evidences of inflammation in the arterial coats which additionally affects the current of the blood.

According to these observations, the acupressure deserves preference to ligation.

In reference to torsion, no doubt should be entertained as to its efficiency in arresting arterial hæmorrhage. The author has demonstrated this by numerous experiments, even upon large vessels. He affirms the observations of THEO. BRYANT that there are constantly numerous and irregular rents through the middle and internal coats in the torqued vessel, which diminish the lumen, and favor the formation of thrombus. But these conditions belong exclusively to unlimited torsion, and not to the method of AMUSSAT, by which part of the vessel is fixed.

10. *Etiology of Erysipelas from Wounds.* By Dr. KÖNIG, Rostock.

[*Amer. Journ. Med. Sc.*, July, 1870; from *Arch. d. Heilk.*, 1869.]

Dr. KÖNIG observed that during a slight epidemic of erysipelas which occurred in the Rostock Clinic, only the fresh wounds made in operations were attacked, and of these only such as were performed in the operating theater. Operations performed upon patients whilst lying on their beds in the wards were not followed by the disease, and persons brought into the clinic in consequence of wounds inflicted outside of the Institution were also exempt. These facts led to the suspicion that the disease was the result of a poisoning of the blood by a virus generated and introduced by the interrupted suture employed for closing wounds. The stitches were immediately removed in all cases in which they had been employed and their use abandoned in all new cases. From that time forward no new cases of erysipelas occurred.

Erysipelas Dr. K. holds to be the result of a specific virus for the development of which the dried blood allowed to remain about recent wounds is a favorable nidus. The old observation he considers to have been a true one, namely, that erysipelas often occurs spontaneously in a wound, in consequence of blood being retained between its edges.

The so-called "medical" erysipelas Dr. K. believes to be identical with that from wounds. Of thirty-three cases of what was set down as non-traumatic erysipelas, in nineteen slight wounds were detected as the starting-point of the disease. In other cases similar wounds might, possibly, have existed, but the swelling was too great to admit of a search being made for them.

11. *Cases of Nerve Irritation cured by Surgical Operations.*
By JOHN H. PACKARD, M.D., Philadelphia.

[*Amer. Journ. Med. Sc.*, April, 1870, p. 347.]

The first of these interesting cases is one of chorea induced by irritation of the terminal filaments of the median nerve. It concerns a girl *æt.* 11, who had a large splinter of wood forced under her right thumb-nail, in April. The splinter was removed, the wound healed kindly, although the swelling was slow in subsiding. In July, the child was suffering from grave symptoms of nervous irritation; choreic movements of the whole body, all the limbs and the jaw; the right half of the body more affected than the left; she had lost flesh and strength, was peevish, irritable; appetite poor. Sensitiveness of the affected thumb. Tonics and a stay at the seashore afforded only partial and temporary relief. In October, Dr. P. dissected up a semi-circular

flap at the edge of the nail, and cut away the subjacent fat and areolar tissue. Healing took place readily. In a few days improvement was perceptible, which continued until, about two months after the operation, the choreic movements had entirely disappeared, and the child gained flesh and strength.

The second case is one of excretion of the right infra-orbital nerve for neuralgia of long standing.

The third case is that of a boy who had received a frightful gunshot injury of the head; a large portion of the scalp torn completely off, together with a patch of periosteum; a stellate fissure of the bone. On the seventh day he was seized with convulsions, fifteen or twenty in the course of the day, mainly affecting the right side. There was a spot at the angle between the two largest fissures, pressure upon which induced convulsions. A button of bone at this place was removed by the trephine. Immediately after the operation he had a strong convulsion, and several others less severe during the evening. After that no recurrence of the convulsions took place.

In his remarks on these cases, Dr. P. says:

Pressure on nerve-trunks may induce very curious and obstinate lesions of the parts to which they are distributed, as I have several times seen. A most remarkable instance of this kind, in which the patient had not slept in bed for more than eight months, from the necessity of constant change of posture, a fibrous tumor at the back of the femur pressing on the sciatic nerve, and inducing enormous swelling of the whole limb, with eczema, burning pain, and acrid sweating, was reported by me to the Pathological Society of Philadelphia in 1863. (See this Journal for Oct., 1863, p. 406.) The tumor was excised with perfect relief, and the patient has remained perfectly well ever since.

In the same number of the Journal, p. 404, a case is recorded, reported by Dr. AGNEW to the same Society, in which a small bursal tumor pressed on the median nerve, and caused total loss of power in the muscles supplied by it. Removal of the tumor gave entire relief.

12. *A Simple Method for removing Cystic Tumors from the Eyelids.* By Prof. J. J. CHISOLM, M.D., Baltimore.

[*Baltimore Med. Journal*, May, 1870, p. 261.]

It is a modification in the use of the nitrate of silver that I have found so effective in the treatment of sebaceous cysts of the lid, and which has enabled me to discard for many years the tedious, painful and sometimes dangerous cutting out of such tumors. If the tumor be a sebaceous cyst, located between the upper portion of the tarsal cartilage and the

skin, a DESMARRES's ring forceps is used as a clamp upon the lid, to shield the ball of the eye from injury, to fix the tumor, and prevent annoying oozing of the blood. Under this ring-pressure a small opening is made into the cyst, through which its contents are squeezed out. The end of a small silver probe, dipped in nitric acid, is then passed into the cavity, is made to pass over the epithelial lining surface, and is withdrawn. Usually, in its passage into the cavity of the tumor, it cauterizes sufficiently the lips of the incision to prevent any oozing of blood when the clamp forceps is removed. When the cyst is formed by the closure of a Meibomian duct, the better plan is to evert the lid and make the puncture from the conjunctival surface, the caustic being applied as directed. The advantage gained by this modification is in the more certain, thorough, and yet restricted application of the caustic, confining its cauterizing influences only to those portions in which action is desired. The results are in every case satisfactory. No after-treatment is needed.

13. *A Peculiar Inflammation of the Lower Lip.* (Cheilitis glandularis apostematosa). By Prof. R. VOLKMANN, Halle.

[*Virchow's Archiv*, Bd. L, 1, p. 142.]

Five times did the author observe a peculiar form of chronic inflammation of the lower lip, concerning which he finds no account in literature. All the patients were adults. Three had been suffering from constitutional syphilis a short time before. Two were quite healthy, and assert never to have been syphilitic.

The course of the cheilitis was similar in the five cases, though of different intensity. The lower lip gradually swelled, without much pain, and became hard and firm, so as to give the countenance a coarse, disagreeable expression. The mobility of the lip was much impaired, in one case lost. The swelling extended through the thickness and breadth of the lower lip, and down to its union with the chin. In one case it affected the upper lip about the corners of the mouth. The skin was slightly reddened. In all cases the mucous glands of the lip were swelled to the size of hemp seeds or more, and could be felt through the mucous membrane in unusual numbers and extent, as nodular masses. Their excreting ducts were much dilated, some of them large enough to admit a fine probe. Pressure, which caused but little pain, would evacuate from them a turbid mucous or mucopurulent secretion.

In three cases abscesses formed, which evidently likewise proceeded from the glands, or at least from the periacinous

areolar tissue. With comparatively little pain, furunculous inflammation developed in the midst of the lip, which perforated either the skin or mucous membrane with fine openings, that had the greatest tendency to become fistulous, and discharged a mucopurulent secretion for weeks and months. In one case, the mucous surface of the lower lip showed from twelve to fifteen such openings; the latter never gave rise to ulcers proper, nor indeed could any syphilitic ulcerations or plaques be detected on the lip or anywhere about the mouth. In all cases, however, existed a pretty active catarrh of the mouth and fauces.

Two cases were extremely obstinate, and left hospital with little improvement; the other three were cured in from four to eight weeks by the internal use of iodide of potassium, mouth washes of chlorate of potassa, and light cauterization of the lip.

As the disease consists essentially of an inflammation of the mucous glands of the lip, the author proposes the names of *cheilitis glandularis* or *myxadenitis labialis*. G. B.

14. *On Forced Flexion of the Limbs in Traumatic Hæmorrhage.* By Dr. ADELMANN, Dorpat.

[*Lancet*, July, 1870, p. 400.]

Dr. ADELMANN, of Dorpat, quoted by *L'Imparziale*, of Florence, strongly advocates this practice, which he considers has, unfortunately, fallen into oblivion. He quotes numerous authorities in support, such as NÉLATON, ANSIAUX, FROMEY, MALGAIGNE, KLOTZ, HYRTL, VIDAL DE CASSIS, and cites a case of his own where forced flexion of the hand on the forearm and the latter on the arm arrested hæmorrhage from a wound of the ulnar artery. Dr. ADELMANN thinks that such flexion should be had recourse to before other hæmostatic means are employed; that this practice should be made known among the people at large, so that it might be used before the arrival of the surgeon; and that soldiers in the field should be made acquainted with it.

15. *Extirpation of a Kidney in Man.* Preliminary Communication by Prof. G. SIMON, Heidelberg, 10th April, 1870.

[*Edinburgh Med. Journ.*, May, 1870, p. 986; from *Deutsche Klinik*.]

In some English and French journals I find communications regarding the extirpation of a human kidney which I performed in August last at the surgical clinique of Heidelberg. These communications are due to medical men who, on their journey through Heidelberg, have seen and examined the patient. As, however, the said communications contain

several inexact and erroneous statements, and as the publication of a full description of the case may most likely not take place for some time, I may as well now give the following short abstract. I feel the more justified in so doing as a sufficiently long space of time has elapsed since the operation to enable us to judge fully of its results:

Our patient (a laborer's wife, æt. 46,) was operated upon by Dr. WALTHER, of Offenbach, on account of a cystoid tumor of the ovary, one year and a half previous to her admission into the Heidelberg Surgical Clinique.

After the abdominal incision was made, it was discovered that the ovarian tumor was so intimately connected with the very enlarged uterus that that organ had to be removed at the same time as the degenerated ovary—*i.e.*, that ovariectomy had to be combined with hysterectomy. But the ovarian tumor was not alone connected with the uterus, but also with the left ureter; so that, at the removal, the ureter was severed in its whole circumference.

The patient recovered, but an abdominal-urethral fistula remained, through which all the urine which was produced by the left kidney involuntarily escaped. I attempted to cure this intolerable state by trying to make a communication between the ureter and the bladder, and by a subsequent occlusion of the abnormal passage, which opened through the abdominal walls and into the vagina. But after many unsuccessful attempts, during which even the life of the patient was several times at stake, we had ultimately to give up this plan of cure. Attempts to produce artificial occlusion of the ureter (and by that means obliteration of the kidney) had also to be abandoned on account of very dangerous symptoms, which made a favorable result most doubtful.

Ultimately I contemplated extirpation of the kidney. By perusing the literature of the day, by experimenting on dogs, by anatomical researches, and by comparing this operation with other somewhat similar operations which had been introduced into surgery, I had convinced myself that, in our case, nephrectomy was not only justified but even indicated. Consequently, I performed extra-peritoneal nephrectomy in presence of a great number of medical practitioners and students, after having stated the reasons which, in my opinion, urged me to perform the operation. The patient stood the operation pretty well, and after six weeks, was so far advanced towards recovery that she could leave her bed. The ligatures of the pedicle did not show any sign of detachment, so I did not try to remove them forcibly, because there was increased suppuration and pain whenever strong traction was made. After six months the ligatures came away with comparatively slight traction. Two days afterwards, the sinus in which they were imbedded was closed, and thus the whole wound was cicatrized.

After the ovario-hysterectomy there remained a contraction of the muscles of the calf of the right leg, which took a long time to cure. The patient, whose health, as may well be imagined, had been seriously impaired in consequence of all the operations which she had undergone within three years, is now in a most satisfactory state of health. She is

engaged all day in needlework, and sometimes takes long walks in the environs of Heidelberg. The reason that she has not been long ago discharged is, that we wished to have her as long as possible under observation, and because we knew that she must, on going home, return to very reduced circumstances.

These are the chief points of our operation, which hitherto has not been attempted in man. In a pamphlet on the case, which will be published in a couple of months, I shall enlarge on the admissibility of nephrotomy in my case; then I shall give the history of the case, and describe the operation, and shall discuss the bearing of my case on the operative treatment of some diseases of the kidney; concluding with observations at the bedside, and the relation of the experiments on animals, which I have deemed necessary for the decision of some physiological and pathological questions no less interesting than important.

16. *On Stricture of the Rectum.* By Dr. FIFIELD, in Boston Society for Medical Improvement.

[*Boston Med. and Surg. Journal*, Aug. 18. 1870.]

Dr. FIFIELD said that during a recent visit to New York his attention had been drawn, by some remarks of Prof. CHARLES BUDD, to the subject of stricture of the rectum. It was of the annular stricture, and not of that produced by malignant disease, that his remarks would be made.

Such stricture is to be found in all conditions of life, among rich and poor and at all ages. At Charity Hospital, Blackwell's Island, cases could always be found, as well as at other hospitals of the city. Attention being called to the condition of the rectum by the complaint of obstinate constipation, a firm ring of cartilaginous hardness is found, craggy with elevations and depressions, when viewed by speculum, white, and bleeding easily. This is evidently a deposit of a new material possessing a low vitality with a constant tendency to destruction by ulceration, and this in its turn succeeded, it may be believed, by a cicatricial tissue.

Following the affection of the rectum comes the destruction of its walls, and the occurrence of recto-vaginal fistula, which is irremediable by any known means. To the constipation succeeds a symptom which might often lead an inattentive observer to believe in the existence of dysentery, viz.: the occurrence of repeated discharges (from three to twelve a day) of pus mingled with mucus and blood, attended with some tenesmus. Attentive investigation of the history of the case will soon, however, set the practitioner right. With all the discharges the patient may have one or two solid feculent motions, in no way different in color or consistency from those in health. These are often attended with severe pain.

The discharges of pus—for so an examination shows them to be—are peculiar in their occurrence. They come at somewhat regular periods, take place suddenly, and no effort of the will is sufficient to resist them.

The rectum has become a reservoir which will contain so much only, and then overflows.

Although the point has never been alluded to by any writer or discussed by any society, Dr. FIFIELD believed that the craggy annular ring tended after a time to disappear, leaving eminences which give to the touch the feeling of currants, and might be mistaken for internal piles. Broad ulcers are also found, which continue to pour forth pus, and are intractable under any treatment. He had seen two such cases. A dispute has existed between two eminent writers as to whether this disease was or was not confined to the male or female sex. Dr. BUDD has seen it only in females, and he is confirmed by Dr. HENRY S. HEWITT, of New York, one of the surgeons at Charity Hospital.

Mr. CURLING, in his work on *Diseases of the Rectum*, evidently alludes to this disease, although, as will be presently shown, he has not grasped its true cause. Mr. CURLING says: "There is a peculiar form of stricture of the rectum not generally known or fully understood. In cases of the disease the interior of the rectum is abundantly studded with small excrescences, arising from partial hypertrophies or irregular growths of the surface and folds of the mucous membrane. The sensation communicated to the finger, passed into the rectum, is remarkable, the surgeon feeling a number of rough, irregular eminences, more or less hard, thickly lining the surface. The stricture is situated further from the orifice than in ordinary cases, usually at a distance of three inches. This disease is attended with a profuse discharge from the rectum of pus mixed with slimy matter and blood. There is not only painful tenesmus before a feculent evacuation, but a frequent and urgent desire to void the pus and mucus which collects in the bowel. This was so frequent and so pressing in the case of a gentleman under my care that he was unable to go into society, ride in a public conveyance or travel by rail."

Dr. FIFIELD stated that a person under his own observation was obliged to wear napkins to receive the discharge, so completely was it beyond control.

Mr. CURLING goes on to remark that "this form of stricture occurs chiefly in women;" he has met with only one case in a male. The disease has been noticed by Sir BENJAMIN BRODIE, who also observed it in women, especially those who have borne children. (*London Med. Gaz.*, vol. xvi). An incomplete paper, giving a short account of this peculiar form of stricture of the rectum, by the late Mr. COLLIS, was published in the *Dublin Quarterly*, in February, 1854. In this paper there is a table of sixteen cases, and it is remarkable that thirteen of them were males. M. GOSSELIN, in a paper (*Archives générales de Médecine*, Dec., 1854,) gives an account of twelve cases, all females. In three, the parts were examined after death. He has shown that "an ulcerated state of the mucous membrane above the stricture is the chief source of the purulent discharge." Dr. FIFIELD said that the domain of syphilis was yet a very partially explored one, and seemed ever to stretch forward before us; that as lesions of the brain, heart, liver and lungs, had now become familiar to us as the result of syphilitic infection, so he believed we should

yet be obliged to own it as the cause of lesions of other parts where its influence had hardly as yet been suspected. In regard to the form of stricture of the rectum which we had been considering, Prof. BUDD has stated his belief that every such case is a manifestation of syphilitic infection. The same view is held by other surgeons connected with institutions to which persons so afflicted are prone to resort. This truth has been suspected for a long period, but not brought prominently forward into broad light, and the authority of Mr. CURLING has been exerted to abolish the thought of connecting one with the other. Mr. CURLING says that the tubercles, scirrhusities and internal condylomata of the rectum, described by DESAULT and DELPECH, were nothing more than the eminences of which he himself has given a description. DESAULT believed them due to a syphilitic origin. This, says Mr. CURLING, was also the belief of GOSSELIN, but *he* (Mr. C.) sees *no* evidence in the cases seen by himself, or in those of M. GOSSELIN, to connect them with syphilis either local or constitutional. M. GOSSELIN supposes an inflammation, resulting from a primary sore, spreads to the rectum and gives rise to this peculiar affection. This explanation, Mr. CURLING says, few will regard with satisfaction. Dr. FIFIELD thinks it may, *now*, from the testimony of many competent observers, be considered as a result of constitutional syphilis. Treatment of this affection, except so far as constitutional means can affect the whole system, may be considered useless. In regard to the local effects of the disease, such as recto-vaginal fistula, they have as yet proved incurable. Such, at least, is the testimony of those who have had the best opportunities for observation. In the early stage of the stricture, the dilatation by the gentle use of bougies may effect good results, but it must be persisted in for a very long time.

What is true of stricture of the rectum will, Dr. FIFIELD thought, prove true of stricture in other parts. At a recent meeting of the Royal Medico-Chirurgical Society, the question was asked, "How far is the resilient stricture of the urethra connected with constitutional syphilis?" showing that the thought has already arisen that all strictures of the urethra are not to be referred to as the effect of repeated gonorrhœal inflammations or to injuries inflicted on the canal. Strictures of the œsophagus when non-malignant are probably the effect of syphilis. A remarkable case of this may be found in the last number of the *American Journal of the Medical Sciences*. In this case the operation of gastrotomy was performed with a fatal result.

Editorial.

MEDICAL JOURNALISM IN THE UNITED STATES.

At the late meeting, in Washington, of the "Association of American Medical Editors," Prof. N. S. DAVIS, of Chicago, the President of the Association, delivered a most able and truthful address on the history and present condition of the medical periodical press of the United States, its faults and shortcomings, and suggestions for its improvement. As this is a subject in which the readers of medical journals are interested as well—deeply interested,—we need not apologize for reproducing extended extracts. We therefore repeat those passages which refer to the defects of our journalism and the proposed remedies:

"I cannot agree with those who, after excepting one or two favorite publications, unsparingly denounce all the rest as mere trash, or stupid copyists from one another. Neither can I join with those, at home or abroad, who indulge in unrestricted depreciative comparison of our periodicals with those of other countries.

"And yet there are faults too obvious to be overlooked, and which this Association should make earnest efforts to correct. Nearly all our periodicals are modeled on the same plan. Each contains a department for original articles, and clinical and society reports; another for selections from other periodicals; another for notices of new publications, and another for editorial and miscellaneous matter.

"It is true that most of our periodicals admit into the first of these departments articles defective in style and impoverished in ideas; cases so imperfectly reported as to be of no value, and reports from Hospitals and Societies equally imperfect and valueless, except to fill space and give publicity to the names of the parties concerned. But a candid examination will show that matter of this character really occupies but a small part of the space devoted to original matter in nine-tenths of our medical journals. In the department for selected matter there is room for great improvement in a large proportion of our journals. In some it habitually occupies from half to two-thirds of the whole number of pages, and consequently gives the publication more the character of a reprint than anything else. In some cases this is done by copying, in full, articles from other journals, and in others by making summaries, or digests, of the current matter in their exchanges.

"The occasional copying of an essay, or article of more than ordinary value, from one journal to another, always giving due credit for its source, and thereby giving it a wider circulation, is doubtless not only justifiable, but beneficial to the author and the whole profession. But, as a general rule, the editors of medical journals should treat the original matter in their cotemporaries in the same manner as new publications. They should make such careful and well-considered reviews of the important papers as would give their readers a correct idea of their nature and value, thereby enabling them to judge whether the original was worth their purchase or not.

"In a large proportion of our journals, the space devoted to new books has come to be filled with a simple announcement of the work, with a copy of the title-page, and sometimes the table of contents. The quarterlies, however, and a few of the monthlies, present, in each number, some very creditable reviews.

"But, in our estimation, no part of our medical periodicals is more deficient than that which is expected to be filled by editorial matter proper. Some of them contain so little from the editorial pen that their readers would hardly know that they were superintended by such a functionary, except as they see his name on the title-page. Others present one or two pages headed 'Editorial,' and filled with facetious paragraphs, personal slurs, news items, and attention to new advertisements. Only a very few, out of the whole number, occupy what editorial space they have with candid articles, calculated to enlighten their readers on the many important questions connected with the sanitary, social, ethical and educational interests of the profession. And I think it may be said with truth that in none of our periodicals do these topics receive the editorial attention that their importance demands.

"It is only through the periodical press that the great body of the profession can be reached. To sit in an editorial chair, and occasionally growl at municipal authorities for neglecting sanitary measures; slur medical societies for imperfections in their actions; indite facetious paragraphs about ethics; and ridicule the attempts of others to advance educational interests, is, to say the least, a very poor performance of the duties belonging to such a position.

"Before leaving this branch of our subject we feel constrained to allude to two other items which we have long regarded as detrimental to the character of a large part of our medical periodicals. One consists in a large amount of editorial puffing and pretension about the superior quality of their particular periodical, and the extraordinary arrangements they have just completed for making it the *very best* in the country.

"The rule of ethics, founded on a just sense of propriety, forbids an ordinary practitioner from boasting of his success in practice, or of the extraordinary character of his remedies; and we cannot see why it is not equally in bad taste for the editor or publisher of a medical journal to indulge in a similar strain of bombast about his own work.

"The other relates to the kind and number of advertisements that are appended to each issue. To the insertion of a list of new medical books,

new surgical instruments and appliances, or the simple business card of a physician, druggist, or medical institution, we do not object; but to take up a periodical, professedly devoted to the interests of science and a learned profession, and find one-third or one-half of its entire bulk made up of advertisements of all kinds, from Fougere's pills to wooden tubs and sewing machines, is equivalent to receiving the impression that the publisher, having embarked in the advertising business, has employed an editor to furnish just enough professional matter to serve the same purpose that the tail does to a kite.

"Having trespassed so much on your time and patience already, I will hasten to a brief consideration of the question, how can medical journalism in our country be improved?

... "Our experience and observations have satisfied us that most of the faults connected with American medical journalism are traceable to two sources, namely, the defective education of the profession, and the imperfect arrangements of those who undertake the editorial supervision and publication of the respective journals.

"It is perfectly well known that a large part of those who enter upon the practice of medicine, under our system of medical education are wholly destitute of that general education and mental discipline which is essential to the formation of a taste for reading and writing. Without an adequate knowledge of the elementary branches of common education, and without the slightest acquaintance with any of the sciences, they have performed the task of reading the text-books in medicine much as the apprentice performs his task in a mechanic's shop; they have attended the heterogeneous course of lectures in some medical college, during which they have made imperfect notes of as many formulas or prescriptions for particular diseases as they could, and they enter upon practice with full confidence that these formulas and their text-books furnish all the literature necessary for the rest of their lives. They have no taste for reading, and not the slightest appreciation of the value of medical periodicals.

"And if, here and there, one of this class be induced to patronize a journal, or furnish a contribution, the letter is written in such style that the editor must either throw it into his basket of waste paper, so far re-write it that the author would not recognize it as his, or let it appear in such condition as to disgrace the pages of his journal. It is directly to this imperfect education of the profession that medical journalism owes both its limited patronage and the literary imperfections which have so frequently subjected it to disparaging criticism. The physician whose mind has been early disciplined by study and fed with the bread of science, will be just as much lost without one or more medical periodicals as is the clergyman without his church paper, or the politician without his party organ.

"The second efficient cause of instability in medical journals was stated to be the imperfect arrangements of those who undertook their editorial supervision and publication. The history of a large proportion of them may be briefly stated as follows:

"The faculty of a college wants an *organ*; or one or two young men, laudably ambitious, think that an editorial position would both give them notoriety and access to the current medical literature; and in either case a bookseller or publisher, or some other business firm who can be made to think that the proposed journal would be a profitable medium for advertising his own wares, and that enough additional advertisements can be obtained to pay a large part of the expense of publication, is sought out, a bargain made, and a prospectus issued, soon followed by the first number of the work. The members of the college faculty, whose names have been put on as editors, or the ambitious young men whose names occupy that position, have provided no reliable corps of reporters to furnish what can be gleaned from the hospitals and medical societies, if any such exist in the neighborhood; they have no resources for original matter, except the voluntary contributions of members of the profession, and, what is equally bad, they have no positive views of medical polity, medical education or sanitary science, with which to give their own editorial space a positiveness and individuality calculated to attract attention and command respect.

"By personal solicitation they succeed in obtaining contributions enough from their friends to make a respectable show of original matter for the first few numbers; but this resource is soon exhausted, and they are obliged to increase their selections from other journals to fill up the required number of pages; the fear of offending some interest, whose patronage is needed, deters them from doing more in the editorial department than to write commendatory notices of books, or call attention to some new advertisement, until heartily tired of the enterprise, they discover that they have not *sufficient time* to devote to the work, and either let it die, or induce some new man to undertake it, and go through the same process.

"In other instances, where the editor holds out more tenaciously, notwithstanding his scanty supply of material, the publisher, after one or two years, discovers that the benefit he derives from the advertising medium is not equal to the deficiency of receipts as compared with the expenditures, and he withdraws, leaving another printer to be found, who, in turn, arrives at the same conclusion in a few months.

"If the foregoing views are correct in regard to the causes of the insufficient patronage, instability and imperfections of medical periodicals in this country, the remedies are obvious. Nothing short of a higher standard of education, both preliminary and medical, on the part of those who enter the profession, and a more correct appreciation of the arrangements and qualifications required for maintaining a creditable medical journal, will remedy the evils. The first would multiply the number of readers and ensure the proper merit in their contributions, while the second would speedily arrest the tendency to make inconsiderate efforts to establish new journals. . . .

"Dr. THEOPHILUS PARVIN, at whose suggestion this Association was formed last year, stated, as one of the reasons for such action, that the editors of the medical periodical press were not exerting that positive

influence on the medical public which belonged to their position, simply because a large part of them maintained a studied silence on all the important topics to which we have alluded, while others break their silence only by an occasional facetious remark. Is it not time, gentlemen that this apathy, this studied silence, on topics of so much importance, was abandoned? Is its continuance compatible with a just appreciation of the importance of our position and of our individual responsibility? If we have assumed positions that give us the power to wield an important influence for good, are we not justly responsible for the enlightened and efficient exercise of that power? These are questions that must be answered to our own consciences."

The condition of medical journalism in the United States is so well portrayed in the foregoing remarks, its faults are pointed out with so much practical insight and circumspection, and the basis upon which any possible reform must rest is so clearly indicated, that we deem it to the interest of every reader to study and consider them earnestly. We agree perfectly with the general propositions of Prof. DAVIS: "Nothing short of a higher standard of education, both preliminary and medical, on the part of those who enter the profession, and a more correct appreciation of the arrangements and qualifications required for maintaining a creditable medical journal, will remedy the evils." Even while we dissent from a few of the details of the address, and feel that some causes of inferiority in the average American medical journal have not been alluded to, we acknowledge the above mentioned as the two radical sources of defects.

Among the points on which we differ with Prof. DAVIS is one of sufficient importance to bear an explanation, viz.: that which refers to the functions of the editor.* We differ as to the principle which, the author of the address conceives, should govern the editor's labors. He takes it for granted that the "editorial" is the grand achievement of the editor, and the direct influence of his pen upon the minds of his readers paramount to all other influences he can exert. This we regard as an error.

Before we proceed to argue this question, let us direct our attention to certain diversities among the individual journals, great enough to allow us to classify them. We can arrange them under four heads, viz.: (1) those general journals which are devoted chiefly to the diffusion of the science of medicine in its daily progress; (2) those general periodicals which are devoted chiefly to the promulgation of professional news, discussions on

* Compare the third paragraph on page 472.

medical politics and questions of the day connected with sanitary measures, public hygiene, and forensic medicine,—in short, medico-political newspapers; (3) journals of specialities; (4) summaries and retrospects. We have examples of these four classes in all countries. In France, for instance, we have as representatives of the first class the *Archives générales*; of the second class the *Gazette hebdomadaire*, *L'Union médicale*, *La France médicale*, etc. In England, the first class possesses the *British and For. Medico-Chirurg. Review*, the *Practitioner*, *Edinburgh Med. and Surg. Journal*, *Dublin Quarterly*, etc., while the *Med. Times and Gazette*, *British Medical Journal*, *Lancet*, etc., are papers of the second class. Of the other two it is unnecessary to quote examples. The same classification applies to American medical journals; and if we have hybrids among them, the fact is explained by the attempt of certain journals to perform the functions of all the classes. There is nothing wrong in this, in view of the fact that many physicians here limit the source of their erudition to a single sectional journal; but the difficulty of carrying out this policy is illustrated in numerous miserable failures.

Now, let us consider what subjects are usually the themes of "editorial articles," as we find them in our medical press. First of all, we meet with questions of medical science. What is there in the nature of this subject to consign it to the last pages of the journal? And what is there in the manner of treating the subject (except sometimes a gross superficiality), that will better the article by heading it "Editorial" instead of affixing the writer's name. Chiding the editor for omitting such articles is only blaming him for not being a diligent contributor to his own journal.—Another subject of editorials is the application of science to hygienic measures, municipal sanitary policy, social questions, etc. A part of the writings of this kind belong to the class just spoken of: the rest are chiefly of local concern. The former have no special claim to be treated differently from other contributions, while discussions of local bearing belong pre-eminently to the second class of journals above described. Prof. DAVIS's stricture should therefore be applicable to the latter journals only, and—so far as we have observed—cannot justly be applied to many of them. Our weekly journals, such as the *Boston Medical and Surgical Journal*, *New York Medical Record*, *Medical Gazette*, *Philadelphia Medical and Surgical*

Reporter, etc., are doing very creditable work in this direction.—The same is true of questions of medical ethics and professional politics, of which, alas, we hear a great deal too much.—News matters, personal items, etc., likewise belong to the domain of the medical newspapers.—Whatever remains—advertisements, facetiæ, personal slurs and quarrels—is out of place anywhere in the pages of a medical journal, and requires no “editorial department.”

In accordance with these views, which we entertained on assuming charge of this journal, we have gradually, and with more difficulty than its readers are aware of, abolished the “Editorial Department” which we inherited from our predecessor, and to which the present article shall be the last contribution.

But, according to Professor DAVIS, if an editor fails to write editorials, readers will not know of his existence except from the name on the title-page. That is on the theory that he has no business to meddle with any but the pages in the rear, set aside for him, and which are so often filled with balderdash and inane generalities. This is not our theory. The editor’s care should be to give direction to his journal, to sift his original articles, to choose his collaborators, and to select reviewers of ability, knowledge of literature, and a general line of thought conforming to his own. He should himself be armed with the literary and scientific acquirements necessary to correct and amend, to remedy defects and add such references as are needed to help the reader in the digestion of new and unaccustomed fare. His hand should be visible on *every* page of his journal. The able and industrious editor will not fail so to impress his readers.

But Prof. DAVIS is right: too many take the editorial chair without a “correct appreciation of the arrangements and qualifications required for maintaining a creditable medical journal;” too many lack the ability or industry to reveal their editorial existence otherwise than by writing editorials. This one of the two main causes of the imperfections in our journalism would, however, be instantly removed if the other cause—the defective general and professional qualifications of the reading public—were remedied. In that case, an inefficient editor would not be supported, as he now is. Thus the grand means for improving our medical press is, after all, “a higher standard of education.”

How can the journalist best promote this cause,—most efficiently elevate the standard of education? By writing editorials and

discussing the policy of our educational institutions? Professor DAVIS's own strenuous efforts, in which we have sympathized most heartily and completely, and the results achieved, which we are mortified to see amount to absolutely nothing, furnish an answer. No; it is *only* by exerting himself to the best of his ability in diffusing the knowledge that is wanting, and imparting the education which too many of his readers lack, that the very ablest editor can influence the cause of medical journalism for good. The journal and the public mutually impress each other; the low standard of education creates a low grade of journalism, which, in its turn, is the worst enemy the cause of medical education has to fear.

METEOROLOGICAL OBSERVATIONS AT ST. LOUIS, MO.

By A. WISLIZENUS, M.D.

The following observations of daily temperature in St. Louis are made with a MAXIMUM and MINIMUM thermometer (of Green, N. Y.). The daily minimum occurs generally in the night, the maximum about 3 P. M. The monthly mean of the daily minima and maxima, added and divided by 2, gives a quite reliable mean of the monthly temperature.

THERMOMETER FAHRENHEIT, 1870.

JULY.			AUGUST.		
DAY OF MONTH.	Minimum.	Maximum.	DAY OF MONTH.	Minimum.	Maximum.
1	78.0	90.5	1	70.0	94.5
2	66.0	78.0	2	68.5	86.5
3	64.0	88.5	3	69.0	88.5
4	66.5	93.5	4	67.0	85.0
5	69.0	97.0	5	64.0	87.5
6	68.5	88.5	6	69.5	95.0
7	63.0	80.0	7	69.0	87.5
8	58.5	86.5	8	67.5	89.5
9	64.5	89.5	9	72.0	77.5
10	65.0	72.5	10	67.5	83.5
11	68.5	88.0	11	69.0	87.5
12	68.5	87.5	12	69.0	83.0
13	70.5	93.5	13	61.5	65.0
14	73.5	92.0	14	60.0	67.0
15	76.0	98.0	15	61.0	73.5
16	75.0	97.5	16	61.0	79.5
17	76.0	96.5	17	63.5	87.0
18	73.0	99.5	18	69.0	88.0
19	75.0	94.5	19	72.0	81.0
20	74.0	98.0	20	61.0	77.5
21	75.0	100.0	21	63.0	83.0
22	75.0	99.5	22	65.0	85.5
23	77.0	98.5	23	69.5	93.5
24	76.5	98.0	24	67.0	95.5
25	77.5	100.0	25	69.5	77.5
26	76.5	99.5	26	63.5	72.5
27	77.0	98.5	27	62.5	87.5
28	75.0	86.0	28	72.0	93.5
29	70.5	88.5	29	69.5	80.0
30	63.0	87.0	30	58.5	83.0
31	67.0	92.5	31	64.5	89.5
Means....	71.1	88.9	Means....	66.3	84.0
Monthly Mean...80.0			Monthly Mean...75.1		

REPORT OF ATMOSPHERIC ELECTRICITY, TEMPERATURE, AND HUMIDITY.

BASED ON DAILY OBSERVATIONS at 6, 9, 12, 3, 6, AND 9 O'CLOCK, FROM
MORNING TILL NIGHT, AT ST. LOUIS, MO.

1.—Monthly Mean of Positive Atmospheric Electricity.

Year	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.	Mean in 10 years.	No. of Thunder Storms.	Prevailing Winds.
1870.	July.	1.1	0.6	0.9	0.4	0.7	1.4	0.8	2.1	3	sw. s.
1870.	Aug.	0.1	0.2	0.4	0.4	0.7	0.5	0.4	2.8	7	se. sw. n.

2.—Monthly Mean of Temperature, Fahrenheit.

Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.
1870.	July.	75.6	85.7	90.4	91.2	87.3	79.8	85.0
1870.	Aug.	69.5	75.8	82.7	83.4	74.3	72.3	76.3

3.—Monthly Mean of Relative Humidity.

1870.	July.	76.9	60.9	53.3	52.0	56.4	73.7	62.2
1870.	Aug.	89.9	70.7	59.5	59.5	76.2	84.5	73.4

The temperature of July and August, 80.0 and 75.1, was in July above the average, 79.0, and in August somewhat below it—76.5 July is generally the hottest month of the year, but its heat was this year especially oppressive, because it was rarely interrupted by thunder-storms and rain. Twice the thermometer reached 100 degrees, and on seventeen days it ranged between 99 and 100 degrees. More pleasant in that respect was August, the thermometer rising but five times above 90, and its highest stand being 95.5. July was a very dry month, with only three thunder-storms and the trifling amount of 1.56 inches of rain to an average of 4.17; while August refreshed us with seven thunder-storms, and gave us 6.97 inches of rain, an excess of nearly three inches above its average—4.15. Positive electricity was very low in both months.

The general health of the city was good for summer; but during the excessive and continued heat in July, the mortality was of course greater, especially among children, than in the more temperate month of August.





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Original Communications.

ON INFANTILE PARALYSIS.

With a Representative Case and two Illustrations.

Being an Introductory Lecture to the Clinical Course of 1870, delivered at St. Luke's Hospital, by LOUIS BAUER, M.D., M.R.C.S.Eng., Professor of Surgery in the St. Louis Coll. of Physicians and Surgeons, Consulting Physician to the City Hospital, etc., etc.

GENTLEMEN: In the course of the last academical year, our surgical clinic has furnished abundant material regarding infantile paralysis. It has proffered ample opportunities to familiarize ourselves with its varieties, nature and treatment.

The present extreme case, aggravated by long standing and multifarious muscular contractions, suggests the propriety of recapitulating the points of interest connected with the subject. The fragmentary history of the case is as follows:

Anamnesis.—The patient is fourteen years old. Since his birth he has resided in the country under tolerably favorable circumstances. His parents belong to that

class of farmers who lead a life of toil, frugality, and plenty. There is no trace of any hereditary diathesis. Our patient had shared the robust constitution of the other children in the family; had given evidence of proportionate intelligence and activity, until the age of two years, when he was attacked by an acute disease of the brain, complicated by convulsions. His recovery was protracted and imperfect. Gradually it became evident that his mind had suffered, and that the lower extremities had completely lost their power and usefulness. At times the patient evinced marked nervous irritability, and occasionally suffered from recurrent eleptiform convulsions, of short duration, which became, however, with advancing age, less frequent, and eventually ceased. In the beginning the lower extremities were utterly helpless for any kind of locomotion. He would lift himself up by his arms and swing the trunk from one place to another. Gradually, however, and in a measure, the motor power in his limbs returned. Thenceforth he managed to get on his feet, and, supported by chairs, table, crutches, or any other available object, he succeeded in moving about, frequently falling. The distortions of his limbs were not discovered before that time. Since then they have become more conspicuous and burdensome. Thus the unfortunate boy has advanced to his present age without attending school or receiving any sort of elementary education.

Clinical Character.—The attendants upon our summer course will remember the pitiable condition in which the patient was received at St. Luke's Hospital some ten weeks ago. To the new-comers among our students this photograph (Pl. II, fig. 1), taken by Mr. SCHOLTEN, of this city, the day previous to admission, will greatly assist in appreciating the general appearance of the patient.

On that occasion the following status was noted: General health perfect; secretions and excretions prompt, regular, and of normal quality; color good; muscles of the trunk, arms and shoulder powerfully developed; thorax

capacious; respiration and heart's action normal; appetite and digestion excellent; sleep sound and dreamless; the senses and organs of sense free from morbid alteration; the patient timorous and distrustful; cries and laughs without occasion; well formed features, without intelligence and expression; staring look; feeble understanding of the simplest things; answers hesitatingly, slightly stammering, with perfect movements of the tongue; skull disproportionately small; aggravated distortions and waste of lower extremities; their length equal, but disproportionately short; temperature below that of the body; sensation tolerably acute; color unchanged by an atmosphere of 95° F.; skin moist; pulse of femoral arteries as small as that of radial arteries; subcutaneous veins of small calibre and scarcely perceptible. The form of the lower extremities changed; muscular contours almost lost; epiphyses of cylindrical bones unusually prominent; the thighs flexed upon the pelvis and strongly adducted; both knee-joints flexed, the left in a higher degree; the left foot in a position of abnormal extension and supination (*talipes equino-varus*); the right in abnormal flexion and pronation (*talipes calcaneo-valgus*); both feet of massive size.

In chloroform anæsthesia the following muscles proved to be materially shortened, opposing antagonistic movements: tensor vaginæ femoris and sartorius of both extremities (hence abnormal flexion upon the pelvis); the 3 adductors moderately (hence abnormal approximation of the thighs); semimembranosus and semitendinosus (abnormal flexion of the legs); the peronæi of the right, with displacement of the tendons of peronæus longus and brevis from within its groove (*talipes calcaneo-valgus*); on the left side gastrocnemius, soleus, plantaris, and tibialis anticus (*talipes equino-varus*). The remaining muscles of the lower extremities, inclusive of glutæi, soft, flaccid and attenuated. Both the primitive current and induced galvanism excite a mere trace of muscular response; the contracted muscles, however, react in a still less degree.

Signally failing in the attempt at extending the contracted muscles of the patient during the chloroform narcosis, I successively divided them, and kept the limbs in extended and abducted positions until the tendons had again firmly united. Since then I have followed up the advantages obtained by passive exercise, faradization and lubrications. In fine, I have resorted to mechanical means in order to steady and prompt the implicated joints, which are in this, as in all similar cases, loose and irregular in their slidings. Thus I have already succeeded, and in a comparatively short time, in correcting the respective malpositions of the lower extremities (Pl. III, fig. 2), and hope still further to promote the motor power, which is still very feeble and defective, but evidently mending, as you perceive by the improved locomotion of the patient. More striking results may not be effected in many months; nay, years may be required before we achieve them in any practical degree.

Causes of Infantile Paralysis.—In the present instance the causation of the complaint is obvious. Meagre as the anamnesis proved to be, we have learned this much, that at a tender age the patient suffered from an inflammatory disease of the brain, and probably likewise of the spinal cord. Even without this information, we should have come to the same conclusion from the facts that—

- (1) the patient was of good intellect, health and locomotion, up to a certain age;
- (2) at this period he was taken sick, and had convulsions;
- (3) the latter extended beyond the actual sickness;
- (4) he has sunk into semi-idiocy, notwithstanding the cessation of the spasms years ago;
- (5) the innervation of the lower extremities has become greatly diminished; their growth, development and nutrition has manifestly suffered;
- (6) the muscles have in a measure preserved their power to react upon galvanism, which is accepted in proof of the cerebral origin of the existing paralysis.

This case is but one of the few from which the veil of causal obscurity can be lifted, having obviously been produced by a tangible lesion of the nervous centers. In most of them there is no clue to their causes. Many patients are put to bed in apparent good health, and have lost the use of one or more extremities in the morning, even without then exhibiting the slightest perturbation of their system. In others, a slight indisposition may have preceded the paralytic stroke, leaving the lesion equally inexplicable. The exanthemata have been charged with the mischief by some authors, a supposition which experience does not confirm. Whooping-cough and violent bronchial catarrh are calculated to instigate the trouble by causing cerebral and spinal hyperæmia and rupture of capillaries.

This very obscurity of causation has given rise to the term of "*essential paralysis*." As a conventional designation it may be allowed to pass unchallenged. At the same time it should be understood that the loss of either motor power or sensation is inseparable from structural lesion or mechanical defect in the nervous system. A mere functional suspension of the nervous power, as the term seems to imply, is incomprehensible from a physiological point of view. I prefer the appellation of "infantile paralysis," for the obvious reason that the complaint appertains to infancy, and happens most frequently during the dentitional period. The designation of "spinal palsy" may be applicable to the majority of cases, but should not be resorted to as a class-term, for self-evident reasons. In the by far larger proportion of cases but one or part of one extremity—mostly a leg or foot—is affected, which, for convenience sake, may be termed "monoplegia." If the lower half of the body or both legs are paralyzed we call it "infantile paraplegia." In this form, but exceptionally, the urinary bladder, rectum and ileo-psoas muscles are implicated, but by no means absolutely exempt, as Prof. VOLKMANN contends.* I have,

* *Sammlung klinischer Vorträge*, Leipzig, 1870. No. I. *Ueber Kinderlähmung*, etc., p. 5.

at any rate, observed one case—that of a young girl—in which the total paralysis of the bladder and sphincter ani constituted a most abject aggravation. If one side is affected, the paralysis is called “infantile hemiplegia.” There are cases on record in which three, and even the four, extremities are involved. They are certainly of rare occurrence. I have seen but one in which first one and then the other side of the body became paralyzed, which happily recovered.

Pathology.—There is scarcely any branch of pathology more obscure than that of the nervous system, notwithstanding the great talent continuously employed in its investigation, and no division more so than that referring to infantile paralysis. We know absolutely nothing about the morbid changes which lie at the foundation of this most remarkable disease. Whatever morbid process initiates the complaint, it invariably takes a very rapid course, is mostly insidious, and often recognized only in its ulterior consequences. Occasionally the restitution of the motor powers is as prompt as its loss. Each individual case manifests the tendency to improvement in some of the paralyzed muscles, and it belongs to the rarest exceptions that the paralysis remains unchanged and permanent. It is scarcely ever attended with fatal termination. Most cases have run their course when they are presented to the surgeon for the correction of one or the other defect in locomotion. Post-mortem examinations have, to my knowledge, never been made at a period when they could have elucidated the anatomical changes. Our ignorance accrues, therefore, from circumstances over which the profession have no control.

Probably the diseases inaugurating infantile paralysis do not essentially differ from those befalling adults. They are certainly more frequent during infancy, and more susceptible to spontaneous amelioration than those in advanced life. The adaptability of the bony casements of the nervous centers in childhood may have something to do with this

clinical fact. The more lively exchange of nutritive and obsolete fluids and other physiological differences between infant and adult life may exercise powerful influence to bring about the difference of results.

I have yet to refer to the hypothesis of the so-called reflex paralysis of MARSHALL HALL, which has found ready acceptance by the profession. It is intimately connected with the reflex functions of the spinal cord, first authenticated by that distinguished physiologist. According to this theory, a peripheral irritation through the medium of the spinal cord may paralyze the motor fibrillæ in another part of the body without affecting the structure of either in the least; in other words, that the reflex apparatus of the cord might subserve two purposes: physiological and pathological *action* and *paralysis* in its motor dependencies. Despite the high authorities (HALL, ROMBERG, STANLEY, VEULDY, GRAVES, and other distinguished physicians), I have not been able to persuade myself of the correctness of their views. The very logic of reflex *action* seems to preclude the opposite effect, namely, paralysis. The pathological facts which have been adduced to brace the theory of reflex paralysis are mainly derived from macroscopic inspection, and are successfully met by the argument that that method of examination is totally insufficient to determine the structure of the spinal cord. Microscopic observation often discloses extensive disintegration in apparently healthy cords. The discovery of "cheque" nerves, even in the spinal cord, is moreover destined to exercise its influence in this direction.

Among the more recent opponents of MARSHALL HALL's opinion are WM. GULL,* KUPMAN† and E. LEYDEN,‡ who severally have anatomically demonstrated that what might have been formerly termed reflex paralysis was recognized as progressive neuritis. Since even ROMBERG§ has with-

* *Med.-chir. Transact.*, Vol. xxxix.

† *Ueber Reflexlähmungen*, Leipzig, 1870.

‡ *Wörzb. Med. Zeitschrift*, IV, 56-63.

§ *Die Nervenkrankheiten*. Berlin. 3te Auflage.

drawn his adhesion to the theory of reflex paralysis, we may consign it to history.

The clinical character of infantile paralysis is so fairly represented in our case that further delineation seems to be needless. In its various forms, prompted by seat and degree, great differences may be noticed. They fall, however, within the same general aspect. Thus, the *attenuation of the paralyzed parts* may be more or less marked than in the present instance, but it is never entirely wanting. The waste of substance is of course quite conspicuous in aggravated and protracted cases, attaining, however, extreme proportions when complicated with muscular contractions. You have assuredly observed instances in our clinic in which the affected limbs, figuratively speaking, had been reduced to the very skeleton. In the public thoroughfares of large, more particularly European, cities, the most shapeless beings exhibit their paralytic distortions as a silent appeal to the commiseration of passers-by. They are supposed to be trained from early infancy for this singular career.

The temperature in the affected limbs is invariably below the ordinary standard, the thermal disparity being most conspicuous at the hands and feet. In cold weather the limbs become livid, mottled, probably from sluggish venous circulation.

The defective nutrition interferes not only with the circumference but likewise with the growth and development of the member. Hence, the latter is in all its dimension and component parts diminished—more so, of course, in cases of long duration.

It is a curious fact that, however completely the mobility may be destroyed, *cutaneous sensation but exceptionally suffers*. This fact constitutes a distinctive feature in infantile paralysis, and aids in differential diagnosis.

Looseness of joints is a marked symptom in this complaint. When parents speak of "weak ankle," etc., you may rest assured that infantile paralysis lies at the bottom.

You observe that this condition of the joints renders locomotion very unsteady. If it concerns the hip-joint, the limb may be rotated on its axis to such an extent that the toes point backward; moreover, you may give to it any position, and bring the toes in contact with any part of the body—impossible with a healthy extremity. The knee recurvates to an angle of 170° and less when the weight of the body is thrown upon it. The foot turns laterally either way, so that alternately the tibial or fibular margin of the foot, and, in extreme cases, even either of the malleoli, may touch the floor.

As to the proximate causes of the articular looseness, there seem to be two apparent, namely: defective elasticity, probably from fatty degeneration of the ligamentous apparatus of the respective joints, and change in the size and form of the articular epiphyses. The latter is particularly noticeable at the hip-joint, where the head of the femur may be drawn away from and freely knocked about in the acetabulum, from one side to the other, like the rod in a triangle. The looseness of the hip-joint may even attain such a degree as to permit dislocation and reduction at will. I have met several cases of this description, in which, however, infantile paralysis had extended into puberty and beyond. Under similar circumstances the same happens with the shoulder-joint.

Lastly, we have to consider *muscular contraction* as a casual but by no means unfrequent symptom of this malady. It may so *insiduously* creep into existence as to be at first completely overlooked, or be *suddenly* superadded. Malpositions and distortions are inseparable from the morbid shortening of muscles. The proximate cause of this symptom is equally obscure. Todd's suggestion of peripheral irritation in the immediate neighborhood of the central lesions seems to clash with the clinical fact that muscular contractions frequently supervene at a later period of the trouble, when the original disease has apparently become obsolete.

The muscular antagonism of DELPECH has been effectually dispelled by clinical observation and experiment. Among other facts, the supervention of contractions in totally paralyzed muscles must be accepted in evidence against the antagonistic theory.

The latest hypothesis has been advanced by Prof. C. HUETER, who contends that habitual positions of paralyzed parts determine contractions. Prof. RICHARD VOLKMANN has become its exponent by more ingenious than plausible arguments. I have to take issue with these authors, on the ground that—

- (1) contractions of muscles in infantile paralysis constitute but a moderate per centage, whereas the static conditions prevail in every solitary case ;
- (2) contractions appear in some instances at an early period, and before habitual position could possibly have become established ;
- (3) contractions are generally superadded at a later period of the disease, after habitual position has existed for a long time, and exceptionally quit suddenly, say in one night ;
- (4) contraction in paralyzed muscles from habitual position could not possibly resist extension, more particularly in anæsthesia ;
- (5) contraction from that cause would necessarily produce, to say the least, similar effects, inasmuch as the static laws are the same in every patient.

The most striking argument in controversion of HUETER's hypothesis we derive from our patient. There are the contractions of the adductor muscles of the thigh. They cannot have arisen from habitual position, since the weight of the extremities would have rather parted them. Next, both knee-joints are bent by the contractions of the hamstring muscles against the static tendency of their weight. Recurvation should have become established, if HUETER's views were correct. In fine, we meet not only the very opposite malpositions of the feet coexisting with

the very same malposition of knees and hips, but there is equino-varus at the left, whereas calcaneo-valgus should prevail, if we have to rely on the views of HUETER and VOLKMANN. Hence, I apprehend that this latest theory will not stand the test of either experience or criticism. It may be applicable to a few isolated cases ; but the contraction in general must have a different causation.

Although I am unable to furnish you with the key to this pathological mystery, yet I am fully prepared to assert its central origin. Occasionally we observe cases in which this fact becomes established beyond reasonable doubt. I remember, in particular, the case of a merchant who, in consequence of violent exertion, had acquired paraplegia exclusive of bladder and rectum. The case was set down as spinal apoplexy. The motor paralysis was complete. Sensation was, however, not entirely destroyed. The limbs gradually became atrophic, lost their muscular contours, and hung passively down. No reflex-action nor any response to the galvanic current could be induced for quite a long time. Towards the end of the third year painful sensations made their appearance in the lumbar portion of the spine, which descended along the sciatic nerves to the lower extremities. About this time the patient experienced painful contractions in the muscles of the calf, which, in comparatively a few hours, became stationary, and gave occasion to high-graded talipes equinus. The disease was central in seat at its very inception, and sensation too much depressed to excite reflex contraction. No other conclusion could be arrived at than that of centrifugal causation. The disparity of age could have exercised no material influence.

The suggestion made, if I mistake not, by Mr. BARWELL, that contractions are brought on by spasms, is evidently gaining the favorable consideration of the profession both at home and abroad. Nor can it be denied that clinical observation furnishes many plausible arguments in its support. The case just related points in that direction. I furthermore remember the case of a powerful man who had

received a stab into the spine, so that the knife could be withdrawn only with difficulty. The wound had already closed by first intention, and no further consequences seemed to be impending, when, on a sudden, the extensor muscles of the foot became painfully contracted, so as to give rise to highgraded talipes equinus. During chloroform anæsthesia the muscles relaxed completely, and the malposition of the foot could be corrected, returning, however, with the subsidence of the anæsthetic effects. Moreover, I have observed in some cases a certain cataleptic rigidity of the muscles, which eventually changed into absolute contraction. These and similar observations render the theory of BARWELL acceptable, though it fails to explain the proximate cause of the spasm. This symptom is obviously connected with the central lesion, and makes its appearance only in such cases in which the motor paralysis is incomplete, either at the outset (paresis), or has become so by subsequent improvement. It must, consequently, be taken as a favorable circumstance in the character of the malady. Clinical observation has thus inclined me to the views of BARWELL, but I have still to dissent from the practical inferences which that author has drawn. My dissent rests on the following objections :

(1). It is unphilosophical and at variance with clinical observation to suppose that spasm can last *ad infinitum*, without remission or interruption.

(2). The muscles thus affected by spasm, probably from sclerotic changes in their structure, rapidly lose their expansibility, become rigid, unyielding and permanently shortened, a condition totally at variance with the nature and definition of spasm.

(3). The structural changes render the contraction permanent and independent of the central lesion which originally gave rise to it.

(4). Muscles thus contracted are beyond the action of anæsthetics, the continuous galvanic current, or forcible extension. In fine—

(5). Gradual extension by weight, elastic tubes or other mechanical means, does not exercise any noticeable effect upon the length of contracted muscles.

It would therefore seem that the spasm is but of ephemeral duration, soon to be followed by a textural metamorphosis, which, as it were, petrifies the shortened muscle and deprives it of the very remnant of vital expansion.

I have thus far omitted to elicit the structural character of the contracted muscles, but hope to have soon the opportunity of substantiating my suppositions by the microscope.

Heretofore it has been supposed that the paralyzed muscles speedily undergo fatty degeneration. According to the two DUCHENNES, this process is in relative keeping with the degree or completeness of the motor paralysis. The very reliable investigations of VOLKMANN and STEUDENER have, however, dispelled the error of the so-called "atrophie graisseuse" of DUCHENNE. Exquisite fatty degeneration does not even exist in very protracted and complete cases. The muscular fibres were found to be reduced to a diameter of 0.003, 0.006, 0.0075 mm., and beset with exceedingly minute fat granules, as if covered with fine dust, while the interstitial fat seemed to be augmented.

The prognosis of infantile paralysis is, in the main, not unfavorable. It is not only harmless to life, but very rarely permanent in duration. All observers coincide that in most instances spontaneous improvements take place, modifying both the extent and intensity of the trouble. Occasionally the change for the better is very rapid and complete; perfect recoveries, are, however, of rare occurrence. Mobility and form of the affected extremities may, in a measure, be restored, but scarcely ever to such a degree as to obliterate the ulterior consequences of the disease. The disparity in growth and development will still manifest itself after years of apparent recovery. Notwithstanding these undeniable facts, the treatment of infantile paralysis is of material service to the patients in bringing about more rapid and extensive improvements than if left to itself.

The prognostic axiom of DUCHENNE that the complete loss of galvanic excitability is significant of paralytic permanence I consider of but conditional value. You remember the colored child that was sent to our clinic by Prof. STEEDMAN. Its motor paraplegia was found to be complete, though of but two months' standing. The galvanic current did not produce the slightest effect upon the paralyzed muscles; the sensation was obviously unimpaired, for the child fully realized the pain caused by the strong battery of Dr. STÖHRER, of Dresden. The treatment of a month has sufficed to restore some mobility and galvanic response of the affected muscles. The improvement in the premises may be either spontaneous or the result of therapeutic efforts, or both; but the fact against DUCHENNE's opinion remains undisputable.

According to my experience, almost every case of infantile paralysis is more or less susceptible of material amelioration, more particularly those cases complicated with muscular contractions, for reasons which are already set forth.

Gentlemen, we approach now that portion of our lecture which comprises the treatment of a malady of which we possess but a fragmentary knowledge. At the outset I have, therefore, to state that we are restricted to general principles and to such enlightened empiricism as experience can furnish. We might simplify the task by excluding the therapeutical consideration of recent cases, so rarely the object of the surgeon. Most of you, however, are destined to take position among the general practitioners of the country, and may be called upon to grapple with such cases, irrespective of their duration. Hence it is due to your mission to be as well informed as circumstances will permit. It would be your task, with all the means at your command, to subdue or to limit the central lesion which lies at the foundation of infantile palsy. In order to fulfill that indication understandingly, the pathology of the central disease should lie open to us. This is, however, not

the case. It would, therefore, seem wiser to content ourselves with general measures than to attempt a "rational" treatment based on mere speculation. If we have no sure way to cure, we should shrink from experimenting, which could possibly aggravate and harm. You have, of course, to mitigate the symptoms of cerebral and spinal meningitis, whooping-cough, bronchitis, bronchial and intestinal catarrh, or alvine constipation, if such prevail; but I would advise you not to resort to medication with a view of restoring the integrity of the brain or spinal cord by direct means. Strychnine, ergot, electricity, and the like, or the questionable absorbents, are both dangerous and superfluous. Many a case has become intractable by indiscreet interference. Serous effusions disappear in due time by themselves, without aid. Plastic deposits cannot be restrained from organizing, and hæmorrhagic clots must pass through the ordinary changes, and cannot be removed by medicinal agents. Both prudence and experience are therefore in favor of a temporizing treatment. Enough remains to be done to serve your patient. Above all, combat inflammation, if it should manifest itself in any part of the nervous system or its investments. Local depletion, ice, and rest, are perhaps the most available means in its alleviation. Pay the most scrupulous attention to the hygiene and comfort of your patient. Daily warm baths will secure cleanliness and promote cutaneous action. Let the diet be light, nutritious and regular. Send your patient into the open air as soon as practicable, and favor locomotion, if need be, by braces, crutches, or any available means.

The treatment of the paralysis itself will be next in order. The earlier you enter upon it the surer you will succeed in preventing or limiting its remote consequences. Masterly inactivity is out of place. Nature will do much for amelioration, but surgical art can greatly and materially assist in quickening and completing her efforts. Some practitioners argue that, since the central disease is inaccessible to treatment, its results are placed beyond change,

and that the latter must, by necessity, disappear with the central cause. Such reasonings sound plausible to the uninitiated, but they are in part erroneous and in part impracticable. I have already informed you that muscular contractions do not diminish or relax with returning innervation; nor does the deformity of bones and joints benefit by the re-established vitality. Moreover, experience furnishes ample proof that persistent and patient treatment promotes the nutrition and temperature of the part involved, and it is not unreasonable to suppose that by augmented nutrition the growth and development is materially benefitted. These advantages are therefore strong pleas for an early and persistent interference. Do not expect to accomplish marvels in a short time, but be assured of fair compensation for patient and enduring attention. My memory is charged with an instance of forcible bearing in behalf of perseverance in the like cases:

Many years ago a poor Irish woman brought to my clinic at the Long Island College Hospital, of Brooklyn, an infant thus afflicted in one of the lower extremities. The limb had been in that condition several months, exhibiting the most aggravated symptoms of infantile paralysis, exclusive, however, of contraction. I did not test the galvanic excitability, but I remember clearly that volition and reflex action were all but extinct in the paralyzed muscles. Being the mother of a large family, with a worthless husband at her side, and therefore without means, except such as she procured by her own efforts, and residing in the city of New York, she was unable to attend regularly. I did all I possibly could under the prevailing circumstances, but that was not sufficient to alter the affliction in any material degree. I advised, therefore, the mother to follow the treatment at home, and to that end placed the requisite means within her reach. During several years she followed my directions with religious punctuality, from time to time reporting progress. Then I lost sight of the case and gave no further thought to it. Shortly before my

removal to this city I was called to attend a grocer in a tolerably good locality of Brooklyn, where he had removed from New York. As his wife I recognized the mother of my former patient, and learned her intervening history. She had not only succeeded in curing her daughter almost perfectly, but likewise reformed her husband, who was now a prosperous business man. The former had grown up, and was then a fine, well-developed girl. The use of her limb was unimpaired; it had attained to full length, and preserved almost perfect form and circumference. Nothing could be more gratifying to me than these almost incredibly happy results, and I can but advise you to follow the example of the devoted and patient mother.

The first indication in the management of infantile paralysis is the relief of the co-existing muscular contraction. As long as the latter is permitted to continue, deformity, malposition and impeded locomotion remain; the joints are acted on in misdirection of the motor power, and, worst of all, the contraction seems to exercise a *prejudicial influence* upon the nutrition, development and growth of the limb, which seems to ameliorate as soon as the contraction is disposed of.

We again confront one of the most important questions in orthopædic surgery, viz., how to overcome muscular contraction? To this question two different answers have been rendered. Those who consider muscular contraction as the inevitable result of antagonism (DELPECH), habitual position (E. HUETER, RICHARD VOLKMANN), or permanent spasm (BARWELL), rely upon and emphatically recommend extension by varied means. Those, on the other hand, who consider muscular contraction as a *fait accompli*, brought about by structural changes in the affected muscles, irrespective of the proximate cause, and presume that vital expansion is totally lost, point to the tenotome as the only means of relief.

The advocates of extension set forth a formidable array of scientific authorities, speculations and experiments,

against which their antagonists can produce but a single clinical fact. Now, it is likely that recent contractions in infantile paralysis are of a spastic nature, and that extension may prove a reliable and sufficient remedy in subduing it; but it is equally true, and fully substantiated by clinical facts, that in course of time the contracted muscles lose all vestige of extensibility, and assume the structural character of tendons and fasciæ. Fortunately, we possess in anæsthetics valid tests. In submitting the patient to their effects, we can readily decide the pending question whether we have to deal with vital or textural shortenings of the muscles; for daily experience demonstrates that spasm, however temporary, will subside in anæsthesia, and the affected muscles become soft, flaccid and relaxed, whereas the structurally contracted muscles remain unaffected. This test must be admitted as final. I may confidently appeal to your own observation of the cases frequently presented at our clinic. The occasion has never been omitted to call your attention to this fact, and you remember, in particular, that the same test was vainly employed on the patient now before you. Stubborn facts are, for inductive science, more valuable than the most subtle theories. Occasionally we have seen in anæsthesia the yielding of recent contractions under forcible extension; but as soon as the anæsthetic effects had subsided, the contractions returned with all their might. Notwithstanding this circumstance, we have singled out those cases for, and most persistently resorted to, what is called elastic extension, but without the least permanent result. Not unfrequently cases have been placed under my charge in which the most systematic extension—and for a considerable period—had been employed by other surgeons, without the least noticeable benefit. I am, therefore, not the only one in whose hands that remedy has proved worthless. In order not to be misconstrued, I beg to repeat that, though I positively reject elastic extension as a principle, I accept the same as an auxiliary of great value.

The views which I hold on the anatomical character of contractions on the one hand, and the failure of other remedies in vogue on the other, have naturally inclined me to the liberal use of the tenotome, and I have thus far had no reason to regret it. Of course we cannot cure infantile paralysis by dividing the contracted muscles, but we can overcome this most disturbing complication, and thus pave the road to further improvements. The benefit of tenotomy is not limited to the elongation of the contracted muscle; it affects beneficially the nutrition and the growth and development of the implicated extremity. Why this is so I cannot tell you, but that it is so the surgical experience of many years has affirmatively demonstrated. Analogous observations have been made by me in the treatment of congenital club-foot, and of joint diseases complicated with muscular contractions; and I am therefore justified in attaching more therapeutic value to tenotomy than others who are either committed to the opposite opinion or who have had less opportunity to test its efficacy.

In the moment the contracted muscle is severed, you are able to reduce the malposition and to retain the parts by mechanical means in their proper relation. That it is the quickest procedure to bring about this result cannot be denied by its strenuous opponents. I verily believe that I could not have achieved the same changes in our patient in as many months by extension as in weeks by tenotomy.

The opponents of this operation contend that the division of contracted muscles is irrational, because it debilitates the muscular power by elongating the tendon. The argument returns in full force upon the originator, for if the muscle retains its structural and vital integrity, but is shortened by permanent spasm, the tenotome would prove the most reliable anti-spastic, as already demonstrated by DIEFFENBACH. The simplest experiment upon a hog, cat or rabbit, proves that the retraction of the muscle after division is but temporary. Very soon after the divided muscle relaxes, and the divided tendons again approximate. Similar

observation may be made in congenital talipes equinus. Again, it is feared that the divided muscle will not readily unite in palsied extremities. As far as my experience goes, this apprehension is unfounded.

The most favorable accounts are given as to the efficacy of the constant galvanic current in relaxing contracted muscles. My own experience being limited to the last two years, I naturally hesitate to express an opinion, either *pro* or *contra*. As yet I have not had a single success with this remedy, nor have I had the opportunity of observing a single authenticated case in the practice of others.

Some years ago the daughter of a New York banker came under my treatment, who had been under charge of JULES GUÉRIN and DUCHENNE for a considerable time. She suffered from infantile paraplegia (including bladder and rectum), was greatly distorted by muscular contractions, and more helpless than our patient. The persistent use of the galvanic current, applied by the experienced hand of DUCHENNE, had not given her the slightest relief. I divided successively all the contracted muscles, restored her form, and enabled her to perform moderate locomotion within the space of twelve months. The most remarkable circumstance was the recovery of control over her bladder and rectum. I may, therefore, be permitted to consider the favorable results of galvanism *cum granu salis*.

The second indication in the treatment of infantile paralysis is the promotion of the motor power and nutrition. Various means are commended for this purpose. Faradization occupies the foremost rank in efficacy; it is the best substitute of volition; it prompts the muscular fibre to action; in brief, it is the most direct gymnastic remedy. The affected extremity should be submitted to its action as frequently as circumstances will permit, and it is better to instruct the parents of the patients in its use than to leave it to the occasional visits of the physician. The current should be directed through the main nerves of the extremity, more particularly to those in which the innervation is

diminished or lost. Next, it should be directed to the muscles themselves, the electrodes being placed at their origin and insertion. The return of muscular excitability may be hailed as a promising sign of improvement. Stimulating lubrications are commendable. I employ usually a solution of phosphorus in sweet-almond oil (warmed), from two to five grains to the ounce. Alcoholic washes, with or without essential oils, may be as serviceable. These lubrications should be made thoroughly, and several times a day. Shampooing, kneading, and passive exercises, are valuable auxiliaries when persistently employed. The limbs should be clothed in wool during all seasons, maintaining permanent friction, and protecting the surface against the loss of heat. In fine, you have to resort to mechanical means for the double purpose of keeping proper position and rendering support. The attempt at specifying the multifarious mechanical constructions to meet the requirements of each special case would lead me beyond the scope of this lecture, nor would it be possible to foresee all the necessary modifications. Much will be left to your mechanical ingenuity and the ordinary mechanical appliances. You will find opportunities in our clinic of observing them. In paying due attention to this part of the treatment you will greatly facilitate locomotion, and thereby materially contribute to the speedy recovery of your patient.

Some years ago Prof. Ross called the attention of the profession to the fact that in complete paralysis of the lower extremities the iliacus and psoas muscles were usually exempt, and that they might profitably be employed for locomotion. This information has proved to be very valuable in several of my cases. The braces must be constructed without knee-joints, and their inside portions should terminate in crutches, upon which the tubera ischii rest.

From the preceding remarks you will infer that, notwithstanding the apparent improvement in our patient, the

treatment is only commencing ; but inasmuch as the patient lives many miles from the city, and cannot remain with us the requisite time, we are under the necessity of leaving the details of the treatment to his devoted father, expecting, however, to see our patient every three months. You may thus have an opportunity of observing the expected improvements at a future time.

1116 PINE STREET.

CASE OF COMPLETE TRANSPOSITION OF THE VISCERA.

Reported by R. BURGESS, M.D., Assistant Physician to the City Hospital.

Michael Cavanaugh, æt. 40, a native of Ireland, was admitted to the City Hospital August 15, 1870. He was suffering with entero-colitis, following upon alcoholism. On the 22d he died, and there being some obscurity in regard to the case, I made a post-mortem examination on the same day, and discovered that there was a complete transposition of the viscera.

The man was well formed, limbs symmetrical, height five feet three inches, breadth of shoulders sixteen inches, of hips thirteen inches, weight about 180 lbs., hair brown, beard black and short.

On laying open the abdominal and thoracic cavities, the organs presented the appearance shown in the adjoining cut. The heart was upon the right side, with the apex pointing downward, forward, and to the right. The liver being much enlarged extended entirely across the abdominal cavity, touching the floating ribs at each side ; but the larger lobe lay in the left hypochondriac region. The gall-bladder was also on the left side, two inches from the median

line. The exposed portion of the stomach was seen to the right, just below the smaller right lobe of the liver.

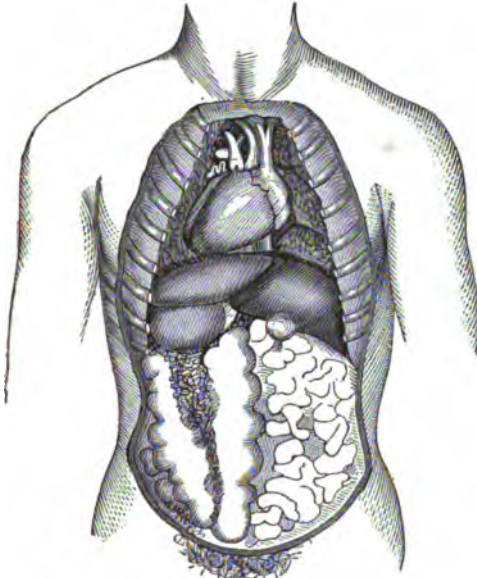


Fig. 8.

Hanging from the greater curvature of the stomach was the great omentum, much diminished in size, and covering a small triangular space formed by two portions of the colon. The colon lay altogether in the right half of the abdominal cavity, and presented on the surface two portions lying nearly vertically, attached to

each other below, but diverging towards the upper part, the whole presenting a figure resembling the letter Y. The left half of the abdominal cavity was wholly occupied by the small intestines.

[Having exposed the organs to view, I called in several gentlemen, who viewed them *in situ*. Among those present were Dr. MORGAN, Resident Physician of the City Hospital; Dr. STEVENS, Physician of the Insane Asylum; Drs. WALLACE, GRIEPEBURG and VITE, Assistant Physicians of the City Hospital; Mr. READE, druggist of City Hospital, and several other persons. On the following day the organs, except the small intestines, were viewed *in situ* by Drs. HODGEN and SMITH, and a class of medical students from the St. Louis Medical College. The viscera were also seen by Dr. BAUER and several other medical gentlemen.]

Having viewed the organs as first exposed, I proceeded to dissect them. The portion of large intestine lying vertically just to the right of the median line proved to be the ascending colon, the caput resting upon the bladder. After tying the ileum at its entrance into the caput, the small intestines were removed, and were found to be attached to the vertebral column by a mesentery of the usual length. The duodenum, however, was found lying in an unusual situation. (Fig. 9 represents its windings). Beginning at the pylorus, which lay exactly in the median line of the

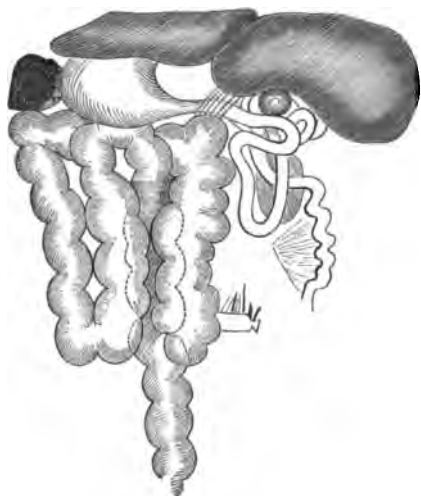


Fig. 9.

body, it extended to the left a distance of three inches, being attached to the under surface of the lobus quadratus and gall bladder. Then recurving upon itself two and a half inches, it was attached to the ascending colon at its posterior part. The course then lay backward and downward close to the vertebral column, and attached to it, for a distance of four inches. The intestine

(now the jejunum) next took its course vertically upward a distance of five inches, and was attached to the first portion of the duodenum, near the gall-bladder. Then passing backward to the under surface of the liver, it coiled upon itself several times, and finally passed outward directly in front of the left kidney. The intestine to this point was without mesentery, and mostly without peritoneal covering, being attached closely to itself and surrounding organs by connective tissue.

The large intestine was next examined. Beginning at the caput cœcum coli, which rested upon the bladder, the

ascending colon passed vertically upward just to the right of the median line of the body till it reached the lobus quadratus, to which it was firmly attached by a bridge of tissue covering the first portion of the duodenum, as shown in the figure. It then passed backward and outward, lying below the stomach and spleen. Then descending along the right lateral wall of the abdomen, it reached the right inguinal region, where it made a turn and was attached to the beginning of the ascending colon. Then ascending again, it formed the outer vertical portion of colon shown in Fig. 9. After reaching the height of the stomach a second time, it made another turn and descended along the right side of the vertebral column, and into the pelvis, forming the rectum.

The remaining organs of the body were examined, and the transposition was found to be complete. The heart was on the right side, the apex pointing to the right. The left side of the heart circulated the blood to the lungs, while the right side controlled the systemic circulation. The arch of the aorta curved from left to right, and the aorta itself descended upon the right side of the vertebral column. The ascending vena cava lay upon the left side of the vertebral column. The right common iliac vein crossed beneath the left common iliac artery, and lay to the inner side of the right common iliac artery. The left common iliac vein lay to the outer side of the left common iliac artery. The left lung was larger than the right, and had three lobes; the right lung had but two lobes. The diaphragm rose higher on the left side than on the right. The openings of the diaphragm were transposed, those for the aorta and œsophagus being to the right of the median line of the body, and that for the vena cava to the left. The stomach and its greater extremity lay towards the right side. The spleen was about half the normal size, and was situated in the extreme right hypochondriac region. The liver was hypertrophied but symmetrical, and lay with its greater extremity on the left side. The gall-bladder was

to the left of the median line. The right kidney was higher than the left, and even the right testicle hung lower than the left.

Some of the organs, viz., the liver, heart, stomach, spleen, and bifurcation of the aorta and vena cava, have been preserved in the museum of the City Hospital.

It may be interesting to state that there is now in the same ward another patient whose heart, at least, is on the right side.

ST. LOUIS CITY HOSPITAL, *August 23, 1870.*

*EPILEPSY IN ITS MEDICO-LEGAL RELATIONS TO THE
CASE OF MAX KLINGLER.*

By J. K. BAUDUY, M.D., Prof. of the Diseases of the Mind and Nervous System in the St. Louis College of Physicians and Surgeons, and Attending Physician to the St. Vincent's Institution for the Insane.

The case of Max Klingler is one of great medico-legal interest to the psychological physician and the practical jurist, replete as it is with intricacies which at times bid defiance to the most searching scrutiny of scientific analysis, and again seeming patent to the investigations of the most careless thinker. A careful review and study of the case in question is of the utmost importance, both as a matter of scientific concern, and as a last effort to stay the hand of justice from perpetrating a judicial murder upon an unfortunate youth, whose greatest unhappiness and apparent malice were the result of an insidious and terrible malady, greatly dreaded by the ancients, so associated was it in their minds with divine wrath, as to have deserved the name of *morbus demoniacus*, *morbus sacer*, or *morbus divus*. I am well aware that there is a greatly-to-be-regretted tendency

or fashion in the present day to shield criminals under the protective ægis of insanity, and which is too often made a pretext for escape, is much abused, and is sought to extenuate the most fearful crimes. The abuse of a well-recognized cause of impulsive crime should excite great care and the most elaborate research in dubious cases, but should never so poison public opinion as to render punishment inevitable to fellow-creatures unfortunate enough to be morally irresponsible. Magnanimity, christian charity and philanthropy, should make us at least fair and just in our dealings with our fellow-men, as we hope for a similar exercise of clemency and equity before that tribunal whose retributive justice may overtake those who are so prone to refuse the explanations of science, of deeds which, though dark and frightful, are the results of paralysis of that will-power which alone makes man a free and responsible agent. Less than this common humanity could not ask, and better were it that many guilty men should escape, than that one innocent person should suffer the extreme penalty of the law.

I will set forth the general facts of the case before proceeding further :

Max Klingler, a boy about eighteen years of age, was a tailor's apprentice to his uncle, Henry Weider. Upon the morning of the day preceding the homicide, his uncle had reproved him concerning his work, and also in reference to the removal of a pistol from a drawer. In the morning, while Weider was making a fire in the stove, Klingler approached him from behind, and putting the muzzle of the weapon close to his head, fired with fatal effect. Mr. Weider's wife, upon rushing to the scene, was seized by the infuriated boy, and struck several times upon the head with a hatchet. Leaving her in an insensible condition, he fled, taking what money there was in the drawer. He ran to the Pacific railroad depot, and was in such haste that he did not stop to pick up his hat, which was blown from his head in the street. Taking the westward-bound

train, he was arrested several hours after its departure at St. Aubert station, by Marshal Laibold, who testified that at the time of his apprehension, his hands were still covered with blood, and that even his clothes were sprinkled with the damning evidence of his guilt. At the coroner's inquest K. made a confession of the homicide. When Max was confronted with the body of the deceased, at the inquest, he wept bitterly. Shortly after his arrest he made a statement, in which he admitted "he had killed his uncle because he made him angry, and was not pleased with his work." *He said he "had made up his mind on the previous Saturday to shoot him"!* He also added, that "when he came down stairs the morning of the murder, he bade his uncle good morning, as usual, but received no answer." He then went to work, and opened the shutters. When he came back, he saw his uncle making a fire, and without saying anything further to him, shot him from behind. He further stated, that "when coming down stairs he had no intention of shooting him, but had loaded the pistol in the garret."

The foregoing is a synopsis of the facts as developed at the inquest, and at the time of Klingler's first trial.

The case was duly tried, and the defendant convicted. A motion for a new trial was argued, based upon several informalities in the preceding trial, and also upon the fact that his lawyer had received letters from Germany, detailing important facts concerning a fall which the prisoner had received, while playing in a barn, in his early childhood, producing a depression of the skull, still quite apparent. The depositions stated that while swinging in a barn one day, he fell from the height of thirty feet. He was found insensible, with a wound of the head, "weltering in his blood."

Without further referring to these depositions, it may be stated that they proved, (1st), the existence of habitual epileptic paroxysms in Klingler's mother and sister, and two daughters of the latter, and the insanity of a daughter of a

maternal aunt ; (2d), that Max himself had been subject to "fits," since his fall. A shoemaker in Germany—a disinterested party—testified also, "that Max was treated by medical men, and I observed on later occasions that he suffered from temporary insanity." In a letter from his sister is found the following pertinent sentences : "Oh, God ! if we could have had but the slightest belief that you would fall into such misfortune on account of your sickness, we would never have suffered you to go to America."

It now being established that Klingler was an epileptic, we will quote a few words from a curious autobiography, written by him since his incarceration : "This case would not have happened if I had not received the *sickness* just on the 25th of November, for I didn't think I would get the sickness on account of all these troubles. I had often said it in German, that I would get the sickness about this time, and nobody should enter the room until I should unlock the door myself, for I get so crazy that I do not know what I am doing. It is dangerous for any one to be seen by me when I get the sickness. The doctor (in Germany) even said to my parents at my examination, that I would become dangerous during my sickness. . . . Oh, I am very sorry that I was so unfortunate, dear friends. I had the sickness on the 25th of November, and unhappily the boss entered. I saw him ; he came toward me and looked at me, when I struck at something. Then I saw that he wanted to come at me, and wanted to hold me ; so I got so intensely crazy that I did not know what I was doing. How I got the revolver in my hand I do not know, nor how he lay there. Then she ran toward me when she found that he lay there, and wanted to strike me. I did not perceive with what I struck her, and when I came to my senses I saw the misfortune, and was scared. Then I left immediately. If I had intended this I would have sent my clothes to some place. . . . I kept the pistol with me every morning, because we had in our neighborhood about ten Indians. Every morning I was first in the store, and was afraid of

these fellows." (This latter circumstance was proved by the evidence of Mrs. Weider).

In due course of time another trial was permitted Klingler. The jury stood seven for conviction, and five for acquittal. This difference in opinion necessitated a third trial. Klingler was again convicted, and is now under sentence of death, several reprieves having been obtained through the indefatigable efforts of his faithful and persevering counsel, and the leniency of the Governor, who has manifested every desire and willingness to be merciful, and extend every executive clemency consistent with the stern requirements of the law. His lawyer has, within the last month, obtained an appeal to the Supreme Court of the United States, having failed to secure a reversal by the Supreme Court of Missouri, of the sentence of death.

Now, having shown that K. was an epileptic, whose disease was the result of a traumatic cause; having proven from the depositions made in Germany, and admitted by the court as evidence during the third trial, that his disease was *hereditary*—his mother and sisters, and other relatives having been similarly affected—and that, moreover, insanity had previously existed in the family, in the person of one of the daughters of K.'s maternal aunt,—it remains only for me to state some general facts connected with the literature of epileptic insanity before proceeding to sum up the reasons which entitled Klingler to an acquittal, and before attempting to solve some of the difficult and mysterious problems, which are so intricately interwoven, as features of this most interesting and singular case.

The fatal influence of epilepsy upon the intellectual faculties, every tyro in medicine is well acquainted with; and fearful is the scourge, which topples over the lofty edifice of the intellectual powers, bearing, as they do, the peculiar stamp of that Divine Being, "after whose likeness man was created." Then, again, in individuals of the most perfect intellectual activity and organization, "a singular changeableness of feeling, of temper and of char-

acter, violent fits of passion, which they cannot master, point to a particular mental condition, which, in the greater number of cases, will be followed by physical phenomena of a more distinct character, but always of the same order, as well as by more serious cerebral disorders, such as attacks of delirium, sometimes transient, *sometimes prolonged*, and then specially deserving the name of epileptic insanity. These disorders of an intellectual character may occur in the intervals during the epileptic paroxysms—may occur immediately before, or after the attack, or they may be more or less prolonged, connected with, or occurring independently of the attack, and are then more particularly characteristic of epileptic insanity." These unfortunates are unquestionably subject, during the *interval between convulsive attacks*, to "a particular mental phase," most significant in its tendencies, and consequences. Sometimes they are querulous and subject to acts of violence or explosive manifestations of the most terrific rage and sanguinary fury. Professor TROUSSEAU, in his admirable *Study of Epilepsy*, quoting JULES FALRET, says: "This irregularity in the state of their feelings and the degree of their intelligence, is necessarily reflected in their talk and in their acts. Hence the excessive variability of their behavior towards those about them. For a certain period of their lives they are laborious, punctual, attentive to the duties of their profession, obedient and docile, and those who live with them, or who employ them, find their intercourse agreeable, or are pleased with their services. But, at other times, their conduct becomes *suddenly* modified, and presents the greatest irregularities. They are then incapable of fulfilling their duties, become negligent, lazy and indolent. They forget the most elementary things, waste their time, or wander here and there, without aim or object in view, and are themselves conscious of the vagueness and confusion of their ideas. The most deplorable tendencies and the worst inclinations develop themselves in them at the same time; they become liars and thieves; *they pick up*

quarrels with those around them, complain of everything and of everybody; are very easily irritated for the slightest cause, and even frequently commit sudden acts of violence, which, in most cases, have not the excuse of provocation on the part of the victims of these acts."

Now, the highest medical authority vouches for the existence of epileptic delirium somewhat allied to the phenomena of somnambulism, in which the patient is not totally unconscious, as he is during the more common epileptic seizures, but has a vague, indefinite, dreamy realization of his condition or passing events. His perceptive faculties may remain active under these circumstances, yet his higher intellectual faculties and the power of his will are not exerted; hence, his actions are, to a great extent, instinctive, or, in some instances, purely emotional. These attacks hold "an intermediate place between simple epileptic vertigo, and the convulsive fits." It is not difficult to appreciate the existence of instinctive actions, or even of actions springing from a still lower intellectual source, or, indeed, resulting from purely material origin. There are reasons to suppose that sensations can be transmitted to and received in the tuber annulare, and yet no true ideas be developed. Ideas which are purely mental operations must originate in the cerebral hemispheres, for that "mere sensation and volition may exist independently of any intellectual action, as they may also exist after the cerebrum has been destroyed," is a fact undisputed in physiology. Volition without intellectual elaboration—a faculty by which an act is deliberately accomplished without the appreciation of the *reason* why and wherefore, without the coöperation of an active intelligence—has its seat, in all probability, in the ganglion of the tuber annulare, at the base of the brain; whereas, actions which are perfectly free and responsible, are conceived, scrutinized, analyzed and determined upon, in the ganglionic cells of the grey matter of the hemispheres, before the will-force, which is determinate, deliberate and free, issues its mandates, which are

conducted along the tubular fibres—which, in their turn, are the telegraphic media of the mind's wishes and intentions—to the subservient voluntary muscles.

As an evidence of the most important fact, that "the disturbance of the reason which follows a convulsive fit, and especially an attack of vertigo, is not always recognized so easily as it might be supposed," TROUSSEAU cites the fact, that "a medical man, for instance, is sent for to see an epileptic immediately after an attack. The patient answers questions pretty well to the point, follows out the doctor's prescriptions, and describes his feelings pretty accurately, but a few hours later, has not only forgotten what occurred during the attack, as the rule is, but he has forgotten all the above circumstances, in which he had apparently concurred with so much presence of mind. It must, therefore, be concluded that his intellect had been deeply perturbed." Again, we find the same author maintains that "not only may the patient's reason remain in a perturbed condition for some time after the attack, *although a superficial observer may not perceive it*, but it sometimes happens that during the attack the epileptic *seems* to retain enough reason *to appear free*." Therefore, how extremely difficult it is to fathom the criminality of epileptics, if such high authority as TROUSSEAU's, which is endorsed, as we will soon see, by that of numerous and distinguished psychologists teaches us that the inferences to be drawn from the irresistible impulses of epileptics, in a medico-legal point of view, are entitled to the most careful study and most elaborate circumspection upon the part of medical experts. The same author, in speaking of a patient—a magistrate—a very intelligent gentleman, subject to epileptic vertigo, states: "He belonged to a literary society, which held its meetings at the Hôtel de Ville de Paris. At one of these, during a discussion on an important historical point, he is seized with (epileptic) vertigo. He runs quickly down to the Place de l'Hôtel de Ville, and walks about for a few minutes on the quays, avoiding with success both carriages

and the passers-by. On recovering himself he perceives that he has come out without his great-coat and his hat, returns to the meeting, and resumes with a perfectly lucid mind the historical discussion in which he had already taken a very active part. He retained no recollection whatever of what occurred between the beginning of the attack and the moment he recovered himself. Now, had this patient quarreled with, and killed a man in the streets, would a magistrate have believed that an individual who, five minutes before, and five minutes after, was remarkably intelligent, and who, during this pretended nervous seizure, seemed to have his free will, could commit murder under the influence of an irresistible impulse? I showed you by numerous examples in point that sudden and irresistible impulses are of usual occurrence after an attack of pettimal, and pretty frequent after a regular convulsive fit. I stated that the patients should not be held responsible for their acts, whether these be followed or not by grave and painful consequences, the gravity of the act itself having nothing to do with the question. The individual is not a free agent for the time, and is, therefore, free from guilt."

The sudden outbursts of epileptic fury are so fearful and sometimes so disastrous in their results, that no maniac is capable of greater and more uncontrollable passion. He is to be dreaded by all around him, and may even become his own enemy. His violence is "blind and instinctive." The most awful and *motiveless* crimes are perpetrated by epileptics during the existence of their greatly-to-be-apprehended delirium. The duration of the delirium varies from a few hours to twelve or fifteen days. It must be borne in mind, that these fits of temporary insanity may be sometimes entirely independent of epileptic seizures proper, being in no way connected with them. Victims of the epileptic influence are apt to be irritated with everything around them, inclined to wander in the streets, and manifest a tendency to obey some concealed, mysterious influence, which blindly, yet irresistibly, drives them in a most

unaccountable manner, in spite of themselves, *nolens volens*, to acts of violence. They feel intensely unhappy, consider themselves persecuted victims, and, as is so characteristic of other forms of insanity, conceive a remarkable aversion to their friends and relatives, by whom they believe themselves peculiarly persecuted and maltreated. "If they have previously harbored any feelings of hatred or thoughts of revenge against any one, these feelings are quickened by their complaint, and suddenly roused to a pitch of intensity which prompts them to immediate action."

The essential feature of epileptic insanity is *impulsive* and *spontaneous* in character. It is well known that epilepsy soon brings in bold relief the animal traits of character, whose development seems to keep pace with the slow but generally certain impairment of the intellectual faculties. TROUSSEAU says: "The circumstance that repeated blows are struck and several wounds inflicted, *or several persons injured*, deserves to be especially noticed, and seems to characterize the condition of furor epilepticus. Hence, it may be of considerable importance in a medico-legal point of view." I would particularly call attention to the fact that when epilepsy has long subsided, and is apparently cured, it often breaks forth in all its pristine intensity; and this same statement holds good as regards the delirious form of the disease. Prof. TROUSSEAU, in speaking of the criminality of epileptics, uses this strong language: "*It may be said, almost without fear of making a mistake, that if a man suddenly commits murder, without any previous intellectual disturbance—without having, up to that time, shown any symptoms of insanity, and if not under the influence of passion, or of alcohol, or of any other poisonous substance which acts with energy on the nervous system, it may be said, I repeat, that the man is afflicted with epilepsy, and that he has had a fit, or, more usually, an attack of epileptic vertigo.*" Again he says: "Who can calculate the degree of liberty possessed by a man in this state of transition between the actual attack and the complete recovery of his mental faculties? *Is there a*

medical man bold enough to pronounce on this point, and to affirm that a crime committed after the attack must entail responsibility ?”

According to ESQUIROL, the return of reason after epileptic seizures manifests itself immediately after an attack, whilst in others it does not return for several hours, or as many days. Hallucinations, more or less permanent, may *complicate* epilepsy, and thereby become a source of dangerous impulses. It has been ascertained that when a threatening attack of epilepsy has, by rare means, been averted, its not occurring gives rise in some instances to such painful and insupportable agitation as to lead some of these unfortunates to indulge excessively in alcoholic liquors, or to seek some source of quarrel under which to give vent to their pent-up nervous irritability, and thereby diminish excessive nervous tension, just as does an impatient hysterical woman when she screams or stamps her foot, with indescribable relief to her morbid and accumulated nervousness. ESQUIROL, in classifying the varieties of epileptic manifestations in three hundred and thirty-nine patients thus afflicted, who were under his care, speaks of some who have “un délire fugace,” and again “soixante n’ont aucune aberration de l’intelligence, mais elles sont d’une très grande susceptibilité, irascibles, entêtées, difficiles à vivre, capricieuses, bizarres; *toutes ont quelque chose de singulier dans le caractère.*” Epileptic vertigo is more destructive of the intellect than are the convulsive seizures. Its duration is oftentimes inappreciable, and so slight, occasionally, are its manifestations, that persons—including even medical men—who are not experts might readily be present, yet fail to recognize its appearance. This, as we will see later, is a fact of the greatest importance. ESQUIROL, in describing the blind, desperate and dangerous seizures of epileptic fury, says that “Cette fureur est si redoutable et si redoutée que j’ai vu un hospice du Midi où tous les épileptiques étaient enchaînés chaque soir sur leur lit, par la crainte qu’ils inspiraient.”

RAY, in speaking of epilepsy and its legal consequences,

in his *Medical Jurisprudence of Insanity*, observes: "Another direct though temporary effect of the epileptic fit is to leave the mind in a morbidly irritable condition, in which *the slightest provocation* will derange it entirely. Sometimes this irritability is accompanied by a sense of anxiety, distrust, jealousy, and unfounded fear, and sometimes by great activity of the lower propensities. . . . Epilepsy seldom continues for any length of time without destroying the natural soundness of the intellect, rendering the patient listless, fretful, indisposed and unable to think for himself, yielding, without any will of his own, to every outward influence, and finally sinking into hopeless fatuity, or becoming incurably maniacal."

Again, in a medico-legal point of view, we find the following pertinent remarks of the same author, whose authority in psychological medicine is universally recognized, and of whom, as Americans, we should justly feel proud: "To determine exactly the mental condition of an epileptic at the moment of his committing a criminal act is oftentimes a difficult task. It may have taken place in the absence of any observer, in a fit of fury *that rapidly passed away*, and which, perhaps, *may not have followed any previous paroxysm*; or the accused, though subject to the disease, *may not have recently suffered an attack*, and may have *appeared* perfectly rational to those around him. . . . Cases of this kind should be closely scrutinized, and where *the accused has been undeniably subject to epilepsy, he should have the benefit of every reasonable doubt that may arise respecting his sanity*. Less than this common humanity could not ask; more, even, has sometimes been granted under the operation of milder codes than the English common law."

One of the greatest difficulties to overcome is the preconceived and prejudiced opinions so commonly entertained, that one particular faculty of the mind cannot become paralyzed or incapable of exercising its appropriate and accustomed functions without the necessary involvement of

all the others, as they cannot be conceived, under the circumstances, to remain untrammelled. Yet the reverse of this proposition is unquestionably the truth. The perceptive, emotional and intellectual faculties may all retain their integrity, and even enjoy an unusual degree of vigor; and yet the volitional centers may be sadly at fault. On the other hand, the will may be in a normal condition, whilst either one or all of the above faculties may be seriously affected or impaired. All these faculties, though so intimately related, may be exercised one independently of the other.

Dr. HAMMOND, in this connection, makes the following forcible elucidation of the very point we are considering: "(1). The brain may be so disordered that insanity is manifested only as regards the will. There are no false conceptions of the intellect, and no emotional disturbance, but solely an inability to exert the full will-power either affirmatively or negatively. (2). Many instances of 'morbid impulse' are uncomplicated cases of volitional insanity, in which an idea, suddenly flashing across the mind, is immediately carried out by the individual, although his intellect and his emotions are strongly exerted against it. Thus, a person who previously has not exhibited any very obvious symptoms of mental derangement—though careful inquiry will invariably show that slight evidences of cerebral disease have been present for some days—instantaneously feels a morbid impulse to commit a murder, or perpetrate some other criminal act."

Hence, how careful should be our deductions as to the responsibility of epileptic criminals! Their disease is a constant source of irritation to a nervous system long depressed by continuous shocks, resulting in a well-recognized morbid irritability, which, like the electric tension of a Leyden jar, goes on concentrating its dangerous forces until some inadvertent victim gives vent to the explosive thunder of its long pent-up and cumulative violence.

Recognizing the fact of our continued ignorance of the

true pathology of epilepsy, does it not seem presumptuous to maintain that because there are some features of Klingler's case difficult to explain, from the fact that they do not exactly correspond with the more ordinary manifestations of epileptic fury, as generally described, that therefore his criminality becomes so patent that his acquittal is not to be entertained. Does not the physician, in his daily routine of medical practice, find the same fever, or the same inflammation, varying so greatly in its types, symptoms and manifestations, as not infrequently to test to the utmost his powers of diagnosis? Do the maladies that we are constantly called upon to treat correspond so faithfully with the typical and stereotype descriptions in the text-books, that to see one case of a given disease is to observe, study and master one hundred of the same nature? If our experience proves to us the fallacy of such deductions, is an epileptic to lose his life upon a gallows because the symptoms of his disease did not correspond with hypothetical cases with which zealous prosecuting lawyers have burdened their memory after a night's cramming of standard authorities? Are the intricacies of mental disease becoming so perfectly unraveled by legal acumen, that an unfortunate epileptic is to receive a felon's doom in consequence of the untenable and unscientific assertions to a jury of the following character? :

(1st). That because Klingler was not *seen* in or known to have a fit, for many years, *ergo*, he had not been afflicted for a long time with epileptic disease.—The prosecution, in this particular instance, had failed to realize the possibility or probability of *nocturnal epilepsy*, although a fellow-prisoner who had slept with Klingler, had testified to the fact, in open court, that one night Klingler had acted most strangely, waking up and seizing him by the throat, appearing strange, wild, and bewildered in his deportment. Nor was any stress laid upon the fact, to the jury, that it was quite *possible* for Klingler to be seized with an unequivocal attack of epileptic vertigo in open court, without an

appreciation or recognition of its direful presence and effect by the judge, prosecuting attorney, jury, lawyers, *physicians*, or spectators. Yet the *logic* used in the summing up of the prosecution that I have just quoted went far toward the conviction of the prisoner, who was asserted not to have suffered with epilepsy, *because for many years he had not been seen in a fit!* There again the fact was entirely ignored that the epileptic paroxysm is not regulated by any legal rule, but that it may occur only once in a man's life-time, or once a year, once a month, once a week, once a day, or several times in a month, week or day. Again, the depression caused by the fall in early childhood, which was evident to the most careless examiner of the patient's head, was no stumbling-block to the irresistible influence of the prosecution's eloquence upon the minds of "that jury;" this notwithstanding the fact that the great authority of FORBES WINSLOW was read to them, to this effect:

"Do we estimate in a manner commensurate with its grave and vital importance the necessity of watching, with the most scrupulous care, the cerebral symptoms that follow all mechanical injuries to the head? I am satisfied that a vast amount of organic, chronic and incurable disease of the brain and disorder of the mind can be directly traced to this cause. In many cases positive and undoubted evidences of disease of the brain are present without exciting a suspicion as to the cerebral origin of this affection, or character of the symptoms. A man receives a blow upon the head. He may suffer from partial concussion of the brain, or be merely stunned. He recovers without any apparent inconvenience from the injury, but subsequently head symptoms exhibit themselves, clearly the consequence of the injury which the brain has sustained many years previously. I am satisfied that the importance of this subject cannot be exaggerated. Repeatedly have I had cases of epilepsy bidding defiance to all treatment—tumors, abscesses, cancer, softening of the brain, *as well as insanity in its more formidable types*, under my care, whose origin could unquestionably be traced back for periods varying from eight to ten, fifteen, and even twenty years, to damage done to the delicate structure of the brain by injuries inflicted upon the head!"

Another statement was made during the closing arguments of the prosecution which went far toward influencing the jury to render a verdict for conviction. I refer to the accusation made when striving to excite the indignation and sympathy of the jury against the prisoner at the bar, when

it was asserted that the boy was a base, heartless, and *mercenary* murderer, whose incentive to the crime was to obtain the possession of an insignificant sum of money (some thirty dollars), which Klingler appropriated after he left the terrible scene of his butchery. This, again, is an attempt to crush out, as it were, by the boldness of an *assertion*, all the real and mysterious psychological difficulties which the study of the case undoubtedly presents. Would it not be quite as logical to arrive at different conclusions from the same premises in maintaining the opinion that, as Klingler was a familiar inmate of his uncle's household, had plunder been his object, it would never have been necessary to kill any member of the family. He could more readily and more safely have secured the money without staining his hands with blood. I believe that K., having accomplished, during an attack of epileptic delirium, his murderous work, then suddenly, and perhaps partially realizing the danger of apprehension and of punishment, which the terrible scene before him must have made him anticipate when the calm of reason commenced to dawn, sought the contents of the money-drawer to aid his flight from the house of death, impressed as were all his senses with the damning evidences of his guilt. I am well aware that the mere fact of his flight would be considered by some as presumptive proof against the existence of epileptic insanity, as *ordinarily* a person under such circumstances would not think of his own safety, and even seek publicity. Yet, in extenuation, I would remark that we are not dealing with a typical case, but with one replete with difficulties and mystery, and that moreover it would be wonderfully strange for an ordinary criminal to ride for hours in a railroad car without his hat, his clothes all sprinkled with gore, and hands stained with human blood. Then, again, there is in all things a law of compensation, and there are other facts connected with the case, and especially with the prisoner's previous history, that are quite sufficient to more than offset any definite conclusions

of his guilt being arrived at on this score. In this connection, Prof. TROUSSEAU remarks that "immediately after the commission of an act of violence, epileptics subject to this form of delirium may get into one of *two* moral conditions widely differing from one another. In some cases, what they have done *eases them, as it were*, and at once puts an end to their undefined anxiety and mental confusion. They are like drunken individuals who suddenly become sober again; *they partially recover their consciousness and begin to understand, although very imperfectly, the guilt of their act*. In other cases they continue to run forward in a state of great excitement and general disturbance—a state in which they are only very imperfectly conscious of the act which they have just committed, or even retain no recollection of it. Therefore, we see that the mere facts connected with his seeking to place distance between himself and the scene of his brutality is no conclusive proof of his sanity.

The grave difficulty, or really serious problem, is Klingler's avowed *premeditation* to commit the homicide. His admission to the coroner, that "he had made up his mind to kill his uncle the night before," involved the defense in much perplexity, and constituted the strongest argument of the prosecution, wherewith to prove the prisoner's criminality, and break down the plea of insanity. In seeking to account for the premeditation, we confess we have to battle with a dilemma, which, not to invalidate the consistency of our theory, has given us no little anxiety and trouble. We do not propose, however, in this paper, *to prove* Klingler's insanity, but only to establish, beyond all cavil, that the prisoner's culpability, or moral responsibility, was entitled to a *very reasonable doubt*, which, when sustained, is a concession made by the law itself, and which was all that his counsel demanded. This once granted, and appreciated by the jury, would necessarily have resulted in the prisoner's acquittal. Nor are we of those who, in seeking to measure the full allowance of justice, mercy, and clemency to the prisoner, on account of his

mental infirmity and hereditary predisposition to nervous disease, would, whilst extenuating his faults, forget what is due to the community at large. We are not for liberating murderers upon an outraged community seeking its own self-defense, and asserting its claims to see executed the law of the land, which alone can protect life, secure property, and preserve the rights and liberties of individuals. No! far from it! We maintain that when a criminal's life has been saved by the plea of insanity, *ipso facto* his doom should be an insane asylum for life, where his own dangerous and destructive propensities can be held in check, whilst the public at large is made to feel secure and comfortable by his isolation. It matters not that he may be sane when acquitted, "and that a sane man should not be incarcerated in a lunatic asylum;" "*aux grands maux les grands remèdes*;" and no person who has been proved liable to explosive fits of homicidal insanity should be allowed his liberty because of an *apparent* convalescence, the continuance of which no expert, no matter how great his experience or attainments, can guarantee to the public. Nor, on the other hand, is it just or humane that he should lose his life because, though irresponsible for a homicide actually committed, he might repeat its perpetration.

Now, to return to the arguments which we have to offer in extenuation of Klingler's supposed premeditation, we will take them up categorically:

1. Was Klingler's homicidal premeditation the result of "hallucinations," which were premonitory of an approaching, or the result of a recent, paroxysm, resisted, perhaps, that very morning by his exercise of will-power not then dethroned, so that his impulses could yet be tamed and controlled by his will and intellect?

2. Was his irritability and peevishness, which led to his premeditated commission of the deed, caused by "an epileptic phase of mind," to which he might have been subject, perhaps resulting in transitory or partial loss of consciousness, without any occurrence of a fit or true epileptic paroxysm?

3. Was the homicide the result of an attack of what MAUDSLEY calls "masked epilepsy?"

I. As regards the first proposition, we would state that there can be no doubt that epileptics are subject to "*hallucinations!*" I have already quoted ESQUIROL to that effect in a previous part of this paper. According to HAMMOND, one of the best American authorities in psychological medicine, "we all at times momentarily have hallucinations and illusions, but the judgment at once prevents continued deception. When this fails to be the case, delusions exist, and we are the subjects of intellectual insanity." How readily, then, can we understand that, owing to some hallucinations, Klingler felt a morbid impulse, the previous evening, to kill his uncle, but through the supremacy of his will, coupled with intellectual power not wholly impaired, he was enabled to resist or correct such an impulsive tendency. Klingler, as proved by the testimony admitted in court, did not kill his uncle until the following morning, after he had given the usual morning salutation, and subsequently *had opened the store* for the day's business. Would not an ordinary criminal, premeditating his crime, have perpetrated the act during the darkness and stillness of the night, when his victim would have been completely at his mercy? Would he have courted publicity, by opening the shutters in open daylight, thereby almost inviting the attention and gaze of the passers-by on a greatly-frequented thoroughfare? Then, again, what *motive* existed to incite the boy to such a terrible crime? Certainly not a *mercenary* one, as I have already proved that he could have accomplished such a purpose with the greatest facility and success without committing homicide. Again, his uncle—his benefactor, friend, and relative—had always treated him kindly, and only a *blind, instinctive, spontaneous and irresistible* impulse could have urged him on to the accomplishment of his terrific and *motiveless* purpose. We have already quoted ample authority, proving that total abolition of consciousness in these cases, though usual, is not at all *necessary*, and that a state bearing some resemblance to

somnambulism may exist. Then the attempt to murder his aunt, with repeated blows of a hatchet, is a fact of some significance. I will here again repeat TROUSSEAU's quotation from JULES FALRET, to the effect "that when *repeated blows are struck, and several wounds inflicted, or several persons injured*; it deserves to be especially noticed, in our opinion, *and seems to us to characterize the condition of furor epilepticus*; hence it may be of considerable importance in a medico-legal point of view." Would not an ordinary murderer have effected his escape when the alarm had been given to the family, and the presence of the aunt and her daughter upon the scene of action made every moment of the utmost importance for his escape to be effected.

II. As regards the second proposition, we will not enter into details, as enough has already been advanced upon the literature of this subject to satisfy the minds of most of the readers of this paper. In epileptics an intermediary form of attack between the true epileptic fury and the convulsive paroxysm, or vertiginous form, is known to exist. "The most deplorable tendencies are developed; they pick up quarrels with those around them, are easily annoyed and irritated, and even commit the most sudden acts of violence, which, in most cases, have not the excuse of provocation on the part of the victims of those acts." Recognizing, therefore, a frame of mind to which epileptics are subject, which is strange, indescribable and *sui generis*, the result of a morbid condition over which they have no control, and for which, therefore, they are irresponsible, how will we, or any one, dare to limit in epileptics the delicate confines where responsibility ends or criminality begins?

III. Was the homicide the result of an attack of "*masked epilepsy*"? MAUDSLEY says: "Sometimes an attack of mania notably precedes an epileptic fit, or a series of epileptic fits; but it is not so clearly understood that the mental derangement so occurring may have the form of profound

moral disturbance, with homicidal propensity, but without *manifest* intellectual disturbance. . . . In such cases there are often *sudden* and vivid temporary hallucinations. Again, the mental disorder which sometimes takes the place of an epileptic attack, representing, in fact, a *masked* epilepsy, may appear as simple impulsive insanity. . . . It happens sometimes that the patient *succeeds in controlling* the morbid idea *for a time*, calls up other ideas to counteract it, warns his probable victim to get out of his way, or begs earnestly to be himself put under some restraint; but at last, perhaps from a further deterioration of nervous element, through bodily disturbance, the morbid idea acquires a fatal predominance; the tension of it becomes excessive; it is no longer an *idea*, the relations of which the mind can contemplate, but a violent *impulse*, into which the mind is absorbed, and which irresistibly utters itself into action." May not Klingler, in his premeditation to kill, during an "hallucination" the night before, have succeeded "in controlling the morbid idea for a time," "called up other ideas to counteract it," but at last yielded to "the tension of it becoming excessive?" Is anything in all this impossible? nay, does not the medical history of the case make it very probable? Klingler's intellectual status evidently shows the sad results of the disease. He is naturally sullen, morose and stolid, and in all probability has suffered long from "petit mal," which, according to the high authority of SCHROEDER VAN DER KOLK, "depresses the mental powers much more rapidly than spasms, without loss of consciousness." It will be argued that the extenuation in these cases is far-fetched, and that the ingenuity of doctors, and the evasive skill of lawyers, is a crime upon the community, whose sense of justice is daily outraged by the ever-ready plea of insanity. Many wrongs do not make one right, and such conclusions are illogical, therefore fallacious, and deserving of no respect or consideration. Science is progressive, and any recognized abuse is no pretext for her non-interference in

cases which, *though they be marvelous and metaphysical in their nature*, are yet, fortunately, not beyond her domain, which is as extensive as the universe itself, reaching from her geological explorations of the bowels of the earth, up into the pure, ethereal heights, whose altitude and sublimity are not outside of her astronomical investigations and soarings. "If any one supposes that the marvelous is incompatible with true science, deserving only rebuke and derision, let him consider that every step in the progress of science has been but the repetition of a marvel, scouted, at first, as unworthy the serious attention of the philosopher, and welcomed at last with triumphant admiration and joy."

There yet remains for Klingler, in the wise provisions of the law, but one chance of escape, and that is properly vested in the Executive, who can exercise his high prerogative to extend clemency in all cases, provided he can reconcile his conscience to the fact of Klingler's criminal irresponsibility at the time of the homicide. This power, necessarily, can only be exercised with great discretion, as public justice requires a stern debt to be paid for the manifest and deliberate violation of the majesty of the law.

I would here cite this remarkable passage from RAY, as published in the *American Journal of Insanity*, in the case of Geo. Winemore, of Philadelphia, Pa.: "In view of what we already know of epilepsy, and what still remains to be learned, we have a right to require the utmost circumspection, and the closest investigation, whenever the legal liabilities of epileptics are in question. The fact of its existence being established, is it going too far to say that legal responsibility is presumptively annulled, and that the burden of proof lies on the party that alleges the contrary? People are scarcely ready for it yet, perhaps, but to that complexion will they come at last."

To generalize the extenuating circumstances of the case of Max Klingler, we have to consider—

(1). The depositions, under oath, of parties in Germany as to the statement of the deceased medical attendant of

Klingler, sustaining the fact of a severe fall in early childhood, which produced a still apparent depression in the cranial bones, and eventuated in well-marked epileptic seizures.

(2). These depositions were confirmed by those of disinterested unprofessional parties, bearing no ties of consanguinity to the prisoner.

(3). These depositions were legal evidence, and admitted as such by the court.

As extenuating circumstances of the homicide itself, considered at length in another portion of this paper, and invalidating the arguments of the prosecution, we have—

(1). The fact proved by quotations from the best medical authorities that the *apparent* absence of epileptic seizures for many years past was no proof of the cure of the disease, which might still exist as "masked epilepsy," epileptic vertigo, or nocturnal epilepsy, and that these forms might still linger, bidding defiance to the most careful investigations of ordinary, including professional, observers, unless they were experts, well acquainted with the numerous and subtle forms at times assumed by this singular disease.

(2). That the homicide was evidently *motiveless*, and that the mercenary theory held forth by the prosecution was not tenable, as the prisoner, being a familiar inmate of his uncle's household, could have taken the thirty dollars safely and successfully without resorting to homicide, which, under the circumstances, was a most unnatural and improbable alternative.

(3). That a knowledge of human nature would reject the belief that Klingler could have deliberately, and in cold blood, butchered his relative and benefactor in the absence of all *apparent* and reasonable motives.

(4). The circumstance of his flight, which, to some extent, invalidated the theory of his insanity, was outweighed by the manner of its accomplishment; the presumption being powerful against the accountability of a

man who would, without his hat, his garments besprinkled with human blood, and hands dyed with the unmistakable evidence of his guilt, for hours openly and calmly ride in a public railroad carriage.

(5). The avowed *premeditation* could be accounted for, as already done, (a), by "*hallucination*," at first resisted and mastered by the supremacy of the intellectual over the purely volitional, or impulsive faculties, which enabled him to successfully combat this propensity on the evening preceding the murder; (b), by "*the epileptic phase of mind*" previously alluded to and discussed, which might reconcile a *premeditation* with a dreamy, somnambulistic, *partial state of consciousness*, which, the highest authorities teach us, is not a very uncommon form of epileptic manifestation.

(6). By the "*masked epilepsy*," described by MAUDSLEY in his recent erudite work, we have another solution of this, the most mysterious and difficult feature of the whole case, it being asserted "that the mental derangement occurring [in epileptics] may have the form of profound moral disturbance, with homicidal propensity, but without manifest intellectual derangement." Again, "the mental disorder which sometimes takes the place of an epileptic attack, representing, in fact, a masked epilepsy, may appear as simple impulsive insanity."

(7). A strong circumstance in favor of the prisoner's moral irresponsibility was the *publicity* of the homicide. Instead of killing his uncle during the night, he came down stairs at the ordinary time for opening the establishment, bade him good morning, opened the store, and instead of seeking to conceal from public observation the terrible work about to be perpetrated, he rather courted the attention or notice of passers-by, on a public and greatly frequented thoroughfare.

(8). The *brutality* of the murder, the fact that "repeated blows were struck," and "several persons were injured," excites a strong suspicion of epileptic fury.

The reasons which we will now offer for the *proof* that the prisoner was entitled to a verdict of acquittal, are—

- (1). Traumatic injury to the skull in childhood.
- (2). The resulting and well-established epilepsy succeeding the fall.

- (3). The strong hereditary predisposition to the disease in Klingler's family, it being proved that epilepsy not only existed in several members of the maternal branch of the family, but that one of the daughters of a maternal aunt had been for many years insane.

- (4). Although the history of the epileptic seizures, and even all proof of their existence in Klingler for many years past, is entirely wanting, constituting, as it does, a serious breach in the medical history of the case, yet, on the other hand, the best and most undisputed psychological authorities maintain that the disturbing influences, and the mental impairment consequent upon epileptic seizures, is *not limited* to the period at which the explosive manifestations of the disease occur, but the effects *extend over an indefinite length of time*, notwithstanding an entire and continued absence of all symptoms of the epileptic disease itself.

- (5). The development of the perturbing influences of puberty in a boy whose nervous system was already morbidly depressed by the serious consequences of hereditary epilepsy, traumatically excited.

Hence, the presumption of moral irresponsibility is in favor of the epileptic culprit, as, according to J. B. FRIEDREICH, of Bavaria—a noted German authority—“*criminal responsibility is absent in epileptics, even should it be proved that the determination to commit a criminal action resulted from revenge or malignity.*”

Therefore we conclude that, although the case of Max Klingler is one replete with difficulties, and offering some contradictions to the ordinary plea of epileptic insanity, nevertheless the *grand fact of epilepsy being proved and maintained*, the prisoner was entitled to “a verdict of acquittal” at the hands of the jury, on the grounds of “a most

reasonable doubt" as to his criminality, which plea of doubt is the bulwark of his defense, fully recognized by the provisions and concessions of the law of the land, and of which Klingler should have had the benefit.*

ON FRACTURES.†

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VI.

The preceding articles of this series have been designed only to point out the indications to be met in the treatment of fractures, and much stress has been laid on the necessity of overcoming muscular contraction. I have followed this thought so far as to show that, even in those cases where lateral supports alone are used to maintain a broken bone in position, this is accomplished by making the bone itself the agent by which extension is kept up. To illustrate still further this fact, I call attention to cases of fracture of the fibula, where the tibia, being the principal support of the leg, serving to maintain the limb in its length, thus prevents the displacement at the point of fracture, even allowing the patient to walk about, and otherwise use the limb. So, too, in cases of transverse fracture of the tibia alone, the fibula may prevent displacement, and no dressings of any kind are required to secure the best possible result.

Another and still better illustration of the importance of maintaining extension is afforded in Colles's fracture of the radius, or fracture near the carpal end, several varieties of which have been particularly described by different authors. That to which I will at present call attention is the most

*NOTE.—The italics in the quotations, in some instances, are not found in the authors cited, but were made, for obvious reasons, by the writer.

†Continued from page 393.

common, and is ordinarily caused by falling on the palm. The line of fracture extends from the inner to the outer border of the bone, transversely or obliquely upward toward the ulnar or radial side, the lower end of the upper fragment being beveled, from the front, backward and upward.

Thus, in fig. 10, the lines *a*, *b* and *c* represent the lines of fracture on the dorsal surface of the bone. In fig. 11 the

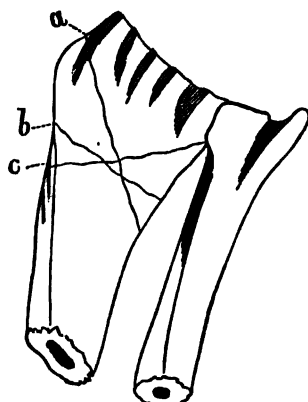


Fig. 10.

line *a* represents the line of fracture on the outer border of the bone passing from the front upward and backward. In this fracture the lower fragment has its articular face turned backward and toward the outer side, and this direction is given by the supinator longus muscle, aided by the radial extensors and the extensors of the thumb. The radio-ulnar ligaments maintain, to a certain degree, the lower frag-

ment of the radius in its proper relations on the ulnar side, while the muscles above named are allowed full play upon the outer border through the agency of the carpus, metacarpus and phalanges. The lower end of the upper fragment is, by the action of the pronator quadratus and pronator radii teres, thrown toward the ulna and turned over it, in the position of pronation. The first indication for replacement is to relax, as far as possible, those muscles responsible for the displacement. The supinator longus, extensor carpi radialis longior, and brevior, are easily relaxed by bend-

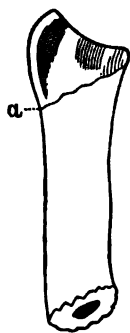


Fig. 11.

ing the elbow, as these muscles arise, in the order named, from the external condyloid ridge of the humerus. The extensors of the thumb are relaxed by bending the wrist backward, and separating the thumb from the index finger. This preliminary movement having been accom-

plished, the adjustment will easily be effected. The position being maintained, the hand is to be prone, so as to allow the two fragments to come accurately together; for there is no means by which we can counteract the action of the pronator quadratus and pronator radii teres in turning the upper fragment over the ulna and drawing the two bones toward each other. To prepare the splint best suited for the treatment of these fractures of the radius, a piece of thin board—a pine shingle answers well—fifteen inches long and four inches wide, should be used. Lay the sound forearm and hand prone upon it, perfectly straight, so that the fingers may project, the joint between the second and third phalanges resting on the end of the splint. Now, with a pencil, mark the outline, cut down to this line, and, if required, cut off the upper end one inch below the inner condyle. Then take as much old cotton or linen cloth as will fill the hand when the fingers are semiflexed, moisten these in equal parts of plaster of paris and water, lay it on the end of the splint, being careful to allow a part to lap around the end, and the mass, for an adult, to stand two and a half inches above the surface of the board. When the plaster begins to set, bind the hand (well oiled) on the plaster, and wrap so as to take a cast of the palmar surface of the semiflexed hand, allowing it to remain until the plaster is hard. Then remove it, and drive a couple of tacks, down to the head, through the splint, two inches from the upper end, so that their points will project through that surface of the splint designed to be free. Pad the surface of the splint to fit the irregularities of the forearm, and over the padding lay a strip of adhesive plaster (moistened with oil of turpentine) three or four inches wide and fifteen inches long, so that its lower end will come one inch above the point at which the fracture will be; the other end should project beyond the upper end of the splint. Now extend the forearm, place the fractured bone in position, replace the hand on the plaster, and pad the forearm on the splint. Place a little padding over the dorsal

aspect of the wrist, and apply the bandage until within four inches of the upper end of the splint; draw the adhesive plaster over the end of the splint, and press the points of the tacks through it, and continue the roller over all.

At any time during the course of the treatment, when it may be necessary to increase the extension, all that is required is to unroll the bandage down to the hand, draw the adhesive plaster tightly, while an assistant makes extension by laying hold of the hand, and again apply the roller to the forearm. Thus we give the hand that position best suited to relax the muscles most active in producing displacement, and provide a means by which a sufficient extending force can be applied.

It is astonishing that NELATON's splint (pistol-shaped) should have ever been devised, the hypothesis of its action resting on the fact that the lower end of the ulna may be made a fulcrum for extending the lower fragment of the broken radius, whereas, in fact, the surfaces of the lower end of the ulna and triangular ligament forming this part of the articulation of the wrist, are so small and so oblique, and the ligamentous attachments so loose, that any effort to use the end of the ulna as a fulcrum must dislocate the cuneiform bone, and allow the ulna to slip partially by it on the inner side of the hand, thus adding a dislocation to a fracture. Again, this position of the hand, bent at the wrist toward the ulnar side of the arm, must make the tension greater on all the muscles causing and maintaining the displacement, thus favoring the deformity which is the usual result when the above-described splint is used.

Now, considering the fact that this fracture is of more frequent occurrence than any other particular one, and that the free and perfect use of the hands is of the utmost importance, it becomes an urgent necessity to adopt such measures as will secure the best possible result. To attain to this I believe we must pay due regard to muscular action, which has been almost, if not entirely, disregarded in principles upon which they have heretofore been treated.

*HÆMOPHILIA IN A CHILD, WITH EFFUSION OF BLOOD
IN THE VENTRICLES.*

By L. TRANÉUS, M.D., St. Louis.

A boy, two years old, born in the city of Gotenburg, Sweden, in 1860, had alarmed his parents by an escape of blood from the navel during some days. When I arrived at the place, March 21, 1863, I got the following information:—The parents as well as all members of their family had never suffered from an affection such as was here presented; one infant, not a year old, had died of some inflammatory disease of the brain, as was supposed by the physician; the eldest daughter, fifteen years old, tall, very stout, healthy looking, not yet menstruated, had twice before had fits or convulsions, which the parents could not more clearly explain; two younger children had always been in good health. The patient had all his life been well, even after the ablactation, until a few days ago, when blood had begun more and more to escape from the navel without previous injury, from which cause his appetite and general strength had been quite destroyed.

When I arrived he was asleep, looked pale, but well nourished; the temperature and respiration were normal, the pulse weak and soft; the navel was closed, well formed, itself as well as the surrounding skin speckled with dry blood and some small, soft coagula, yet there was not then any blood escaping. Having had some experience in this affection from two cases treated in hospital under daily attendance, some years before, I decided first to commence the treatment of this boy with sulphuric acid.

March 22.—All is going on well.

March 23.—Blood has again begun to start from the navel; it is now all fluid; as the bowels are in a good condition, the patient takes the acetate of lead. Returning the same afternoon, I find the patient in the same condition, the blood still fluid. On microscopic examination, the col-

orless corpuscles are present in the ordinary quantity and of normal appearance; the yellow corpuscles likewise of normal quantity, yet not adhering to each other in rolls as usually; most of them regularly crenated around the margin, the tops of the crenations being turned upwards in such a direction that the margin remained free.

March 25.—Condition the same; but there is a disposition to sopor, and increasing; spasmodic movements of the limbs; temperature, movements of the heart, pulse, about normal; the acetate of lead is given dissolved in inf. *secalis cornuti*.

March 26.—Sopor and hæmorrhage continuing; the complexion pale yellowish; pulse weaker; chilliness of face; spasmodic movements continue by fits.

March 27.—At midnight the boy died under continuing sopor.

Post-mortem examination: The sinuses of the dura mater contain dark blood as usually; the cavity of the arachnoidal membrane contains a small quantity of gelatinous fluid between the gyri; section of the cerebral substance of normal appearance; the ventricles of the brain filled with a blood-colored fluid, which mostly adheres to the choroid plexus, which are infiltrated with blood. The heart lax; the lungs pale, yet filling up their cavities; a section through the skin of the navel and its subjacent parts exhibits them infiltrated with blood, though the vessels appear in a good condition; the abdominal organs, though anæmic, are in a normal condition.

To this account of a single case greater interest is added by the facts previously recorded: that one baby of the same family had died of some cerebral disease, and that the eldest daughter had twice been suffering from convulsions; and as still more important I regard a sudden disease which befell the same girl, three years after her brother's death. She had been in good health during the whole intervening period, until she one day fell sick with severe headache,

fever and sopor, which continued for two days and one night; whereupon she speedily recovered, having been treated only according to expectative principles. In these cases it must be assumed that a hæmorrhage had taken place within the cavity of the cranium, which exerted pressure upon the brain—in one case strong enough to cause death, in the others causing only general symptoms of cerebral disease.

Reviews and Bibliographical Notices.

A PHYSICIAN'S PROBLEMS. By CHARLES ELAM, M.D.,
M.R.C.P. Boston: Fields, Osgood & Co., 1869. 12mo., pp. 400.

As indicated by the title-page, this volume is offered by the author as assistance in the solution of several problems of more or less importance and interest, not only to the physician, but equally so to the true statesman, to the political economist, and indeed to every one who has the welfare of his fellow-man at heart. The first three or four questions, more especially, are of grave import, and call for serious consideration, and this consideration must be general, nay, universal, among the thinking public. The professional man can do no more than direct attention to the problems to be solved, and to furnish, perhaps, the chief data upon which an opinion is to be based by the uninitiated. Whatever may be the views held by medical men, or however correct they may be, upon the momentous subjects here treated of, these must remain merely matters of scientific interest and barren of general good, unless the public can be impressed with their bearing upon the well-being of society, and so be induced to unite in their discussion and solution. It is the part of the physician, as a philanthropist, to suggest the means of securing a perfect hygiene for mind and body. It is the part of those who make the laws to consider these suggestions, and act accordingly.

The first question has reference to the laws of hereditary transmissions, both as to mental and physical characteristics, and is put in the following form :

“What of essential nature do our parents and ancestors bequeath to us? Apart from those transitory possessions of money, houses and land, which do not endure, what do we derive from our parents that is permanent and inalienable—that determines our temperament and constitution, our proclivities to health or

disease, to virtue or vice, to dullness, mediocrity, or genius—in short, our entire intellectual and moral nature no less than our physical organization?”

There is perhaps no law of physical life more firmly established than that of heritage, by which the offspring partakes of the conformation of its parents, assumes their excellencies or imperfections of form, and even commonly repeats their deformities of body when congenital, and occasionally when accidental. So well is this law understood that every condition favorable to physical development is secured in the rearing and management of animals destined for man's comforts, whether as necessities or as the mere instruments of his amusement and luxury. By judicious and skillful breeding, by the choice of proper and suitable stock with reference as well to individuals as to species, almost any character of animal possessing special qualifications may be produced. Thus, in the horse we have the racer, which possesses speed with a certain kind of endurance; and yet this endurance is of quite a different sort from that which renders so valuable the heavy draft-horse of Normandy, or the mule of our own and other countries. The consequent arrest of the procreative power in the production of the mule by the conjunction of the horse and ass would seem to indicate a violation of a law of nature relating to reproduction, and we have the analogue of the same violation in the mulatto, the cross between the white man and the negro, the power of reproduction not extending beyond the fourth or fifth generation of these mongrels, whose offspring, moreover, are almost universally feeble and unhealthy. The human race is not less affected by the same conditions of life and development, and the character of his food, of his clothing, his habitation and occupation, have each and all an influence more or less lasting upon his body and mind. The concurrence of the several conditions of ease, comfort, and the absence of a necessity for labor, tends inevitably to produce firmness and delicacy of fibre, and that regularity and perfection of contour which constitute the highest type of physical beauty. Yet excessive indulgence in the same direction, with neglect of the exercise of function necessary for organic perfection, or even irregular and unequal exercise of the same functions, will, in a few generations, end in the degradation and decay of the family or race.

The author proceeds to show that the “child is not only the offspring of the race (as a species) but of the individual, bearing

the traces and consequences of his parentage throughout the whole of his component nature—on his body, soul and spirit; and as a most serious corollary to this, that the career of that child for good or evil, for personal advantages or the contrary, for intellect or for imbecility, and even for moral tendencies, if not written before his birth ‘with pen of adamant on tablets of brass,’ is at least marked out for him by boundary lines, which to over-pass, if unfavorable, will require more than ordinary courage, resolution, and a concurrence of favorable circumstances not often to be looked for.”

There are, he maintains, two leading principles or laws, in accordance with which the varied forms of animal life are arranged and originally constructed, viz., Uniformity and Diversity. As a manifestation of the former, we have similarity of structure, type and function, common to the whole animated kingdom, forming distinct groups. The latter principle manifests itself in those differences which indicate the division into class, orders, genera and species. The principle of Diversity, so far as the species is concerned, is suspended, and is resumed in the production of varieties of individuality. By some, species is held to be constant, becoming extinct but never changing. By others it is maintained that there may be accidental variations in the species, or that a new species may arise by natural selection from those already existing. It is through this law of diversity that one animal may be readily distinguished from another of the same kind or species by those familiar with them, however great may be the general resemblance. No two dogs, sheep, hogs nor horses are exactly alike; everywhere we find individual peculiarities. Domestication increases these peculiarities, and renders the individuality more decided. Life becomes less natural, more artificial. Man is more affected by this law of diversity, inasmuch as he is more domesticated and leads a more artificial life. Hence the individual varieties are infinitely multiplied. Yet with all this diversity, the primary law of uniformity is not forgotten; and so the normal type of humanity is preserved.

Our author proceeds:

“Under the law of uniform transmission of organization, we observe children inheriting not only the general form and appearance of their parents, but also their mental and moral constitutions, not only in their original and essential characters, *but even in those acquired habits of life, of intellect, of virtue, or of vice, for which they have been remarkable.*

Under the law of Diversity, we observe deformity and ugliness giving origin to grace and beauty, apparent health producing disease, virtue succeeded by vice, intellect by imbecility, and the converse of all these phenomena. By virtue of this law, therefore, generations are enabled to free themselves from the taint entailed upon them by their ancestry, and return to their original purity of type."

It appears to us that there is an irreconcilable inconsistency in this proposition of the existence of two controlling principles or laws so diametrically opposed, which would amount virtually to the nullification of all law and order, and render futile all attempt at calculation and prediction as to the qualities of the offspring from any given parentage, however well we might understand the constitution, physical and moral, of these. The author admits the *apparent* opposition of these two laws, and asks whether the evident differences between the offspring and parent may not be due to a direct heritage of some temporary and transitory condition of the vital force at the period of procreation.

This is a very interesting question, and full of suggestion. A correct answer would doubtless explain many unaccountable phenomena connected with reproduction, and throw some light upon the curious freaks of nature which are every day displayed in what are known as monstrosities. But can this query be answered? Can it ever be explained why two parents, to all appearances perfectly healthy, well formed, in the vigor of youth, surrounded by every circumstance favorable to the production of perfect progeny, should beget children imperfect, deformed, and "half made up." Is it due to a temporary malcondition of the vital force at the period of procreation? If we answer this question we will not really have advanced a step, since it remains to understand the "vital force" and its conditions.

The doctrine of hereditary transmission as regards the mental and moral, as well as the corporeal qualities, is of no recent origin. Its entertainment and promulgation among the ancient philosophers and sages is very well illustrated by the quotations and historical allusions here made by the author. Though few men will deny at least the plausibility and probability of its truth, yet, carrying with it as it does such consequences, and forcing, in its recognition, however unwillingly, a consciousness of vast obligations, it is not to be wondered at that the greater portion of mankind have avoided a consideration of the subject,

as it were, flattering themselves that they may escape the effects of an evil when they willfully ignore the cause and its "modus operandi," like the ostrich, which, in burying its head when hard pressed, believes itself safe from the hunter, or like the thoughtless child which seeks safety during a thunder-storm in a dark chamber. It is worse than folly to shut our eyes to stern and inevitable facts, and we find it well proved in this volume that "an acquired and habitual vice will rarely fail to leave its trace upon one or more of the offspring, either in its original form or one closely allied."

If men will lie and steal, will indulge in strong drink or other poisons—if, in other words, men will ruin their intellectual, moral and physical natures by imprudent or vicious habits, they must inevitably do an injury to their intellectual and physical organizations, which, unfortunately for the race, is not arrested by the death of the individual, but extends to and affects his progeny in diverse ways, even to the third and fourth generations. The doctrine of heritage, more especially in regard to man's intellectual and moral nature, necessarily implies a varying susceptibility to impressions, whether good or evil, and corresponding tendencies to the commission of good or evil deeds. As a logical sequence upon these premises must be admitted degrees of laudability or culpability, as the case may be. As the author truly remarks, "the legislator objects to the doctrine because of the apparently insuperable difficulties which its practical recognition would introduce in the adjudication of degrees of culpability for crime. Might we not learn and imitate the wisdom of the Chinese, whom some of our fellow-countrymen consider too barbarous to be admitted to the exalted (?) privilege of the ballot?—for it would seem that they recognize the truth of the doctrine of heritage in its most extended aspects and bearing upon the administration of justice. "In examining a criminal they do not only inquire into the facts of the crime itself: they examine most minutely into the temperament, complexion, and physical state of the accused; into the most trifling events of his former life; into everything that can throw any light upon motive or impulse; also into the state of his parents or ancestors." The existence of such a truly admirable custom among the Chinese indicates a high degree of intellectual culture, as well as a noble attempt towards the attainment of exact justice. It presupposes the possession of a certain and necessary kind of

preparatory education in the administrators of justice, which, however humiliating, we are yet forced to believe does not exist, and is scarcely attainable, in this "best government the sun ever shone upon." Criminality may here be represented by a unit, and justice often by a cipher. The poor devil, begotten in sin, born in shame, raised in poverty and misery, familiar from infancy with the worst phases of crime and vice, without a single suggestion of virtue, and with the passion for possession, plunder and theft forced upon him by the necessities of a hard and precarious living, is found by the wisdom and enlightenment of the nineteenth century—should such a wretch be driven by the pangs of hunger to appropriate sufficient food to keep soul and body together for a few hours—to be no less culpable than the man who, born in luxury and ease, with all the advantages of education, of intellectual and moral culture, yet cannot resist the force of temptations, and commits a forgery or some other species of theft to gratify his vitiated tastes and corrupt passions. The first is commonly sent to spend the greater part of his life within the walls of a penitentiary, where, if there be anything wanting in his education to render him an expert in crime, it will certainly be furnished by the associations which there surround him—his condemnation, too, not unfrequently pronounced by a judge and jury not a whit better than himself; while the second criminal, though he may have stolen thousands and hundreds of thousands, does not uncommonly, through the influence of friends, the weight of money and the corruptibility of the court, escape all punishment. Here in America we have institutions based upon the great fundamental principle that "all men are born free and equal," which is a virtual denial of the law of heritage, and is to us an error so gross as to amount almost to an absurdity. It is an error pregnant with mischief to any country in which it is carried into practical application. It denies the possibility of any influence arising from birth or education, and holds that there is no variation from the single standard of intellectual capacity—no variation or degrees in the moral tendencies between individuals. The consequence of such a pernicious doctrine is the free access of ignorance and vice to the administration of the government, the substitution of license for liberty, the corruption and vitiation of every department of the community, social and political. For verification we have but to look at the halls of our representatives, general and State governments, as well as

our city councils, where every species of rascality, theft, bribery and corruption is practiced with the most barefaced effrontery, and often without any pretense, concealment, or the least fear of punishment. Most reflecting men, then, will admit the correctness of an affirmative answer to the questions—

(1) Has the education of the parent any influence over the capacity of the offspring?

(2) Is the moral nature of man subject to hereditary law?

After illustrating and demonstrating in an interesting manner what the child inherits physically and morally from his parents, the author proceeds to say, in the second article, what are the chief causes of man's degeneration, and to show how our armies of crime and disease are recruited.

Among the most frequent and potent causes of degeneration may be enumerated: Climatic influences, which exercise such a modifying action upon the constitution as to produce actual deviations from the normal type of humanity. The population of malarial districts may be cited as an instructive illustration of this form of degeneration, both of mind and body. The periodical famines and epidemics which occur from time to time are enumerated by the author among the most potent influences producing degeneration. Another fruitful source is to be found in the nature of the food, as also the social medium in which man is placed, his occupations and habitations.

But we have occupied space enough to serve our purpose, which is to call attention to this publication, which certainly is an instructive as well as interesting series of essays upon matters of vital importance to mankind, and deserving of special study. We can cheerfully recommend the book for the perusal of general as well as professional readers.

P. G. R.

OBSTETRIC OPERATIONS, including the Treatment of Hemorrhage. By ROBERT BARNES, M.D., London, F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and the Diseases of Women and Children at, St. Thomas's Hospital, etc. With additions by BENJ. F. DAWSON, M.D., etc. New York: D. Appleton & Co., 1870. Price, \$4.50.

[For sale by the St. Louis Book and News Co.]

We sometimes take up a book, feeling beforehand that its contents are but the generalizations of the age, and that its perusal

will be nothing more than a résumé of what is already known. We read simply because we feel a desire to go over the same ground which we had traveled before, and that a second journey would not be altogether devoid of interest. We read but a score of lines in "Barnes's Obstetrical Operations," when the fact is made patent, that whatever of expectations we have from the author's extended reputation, they are not overwrought, and that a mine of wealth has been developed to the midwifery student. The very opening words of the book stamp Dr. BARNES as an ingenious surgeon, and a thoughtful obstetrician. He says:

"Two things are to be considered when attempting to describe the operations in midwifery—(1) What are the emergencies which call upon the practitioner to operate? (2) What are the means, the instruments at his disposal?

"If each accident or difficulty in labor was uniform and constant in all its conditions, it might be possible to apply to its relief the same operation or the same instrument. The history of operative midwifery might be told in an orderly series of simple mechanical formulae. But how different is the case in practice! How infinite is Nature in her phases and combinations! The dream of LEVRET will never be realized. In proportion as observation unfolds these combinations, ingenuity is ready to multiply the resources of art. To describe these combinations, and the means of meeting them, is a task of ever-growing difficulty. Partial success only is possible."

We are forced to admit, when a man of BARNES's great experience, at the very outset, modestly claims only "partial success," that a consciousness of knowledge induced him to give us its benefits. As such, let us examine the points he presents as *pièces de résistance* in the bill of fare whereof we are to regale ourselves.

Without adverting to the great storehouse of facts from which he draws his conclusions, we must say he claims, for authority, the writings of many men of whom the profession at large were entirely unacquainted until introduced by Dr. BARNES. We are obliged to him for their companionship in the field of letters, but we certainly are somewhat disposed to credit this presentation of hitherto obscure men to the weaker side of Dr. BARNES's character, and gracefully acknowledge that even he has some little vanity in displaying a knowledge of Italian, German and French obstetrical literature, which somewhat detracts from the solidity we Americans so much admire in dignified scientific Englishmen. The style of the book is simple and elegant, and, were it

not for a few grammatical slipshodities, such as using the superlative for the comparative degrees, and the indicative for the subjunctive mood, we would say it is, after WATSON, the most readable production which has been issued from the English press during the past quarter of a century.

The theory of BARNES's book is aptly illustrated as follows:

"When science finds herself in the presence of complicated and disordered facts and ideas, her resource is to classify—that is, to seize a far-leading idea, under which the subordinate ones may be grouped. In the first instance, the minor or subsidiary ideas—the epigenetic ideas, they may be called—are disregarded. The grand or governing ideas only are studied. Then the process of analysis, the descent to details, to particulars, begins; and again, unless we keep a steady eye upon the governing principles, we are in danger of losing ourselves in the infinitely little, of falling into chaos, of running astray from the parent or guiding truth, in fruitless chase of the multitudinous splinters into which it has been subdivided. . . . Labor is a problem in dynamics. Three factors are concerned in the solution: (1). There is the *fœtus*, the body to be expelled. (2). There is the channel, made up of the bony pelvis and soft parts, through which the body must be propelled. (These two together constitute the resisting force—the obstacles to be overcome). (3). There is the expelling power, the uterus and voluntary muscles. These factors must be harmoniously balanced to produce a healthy labor. Labor may come to a stand from error in any one of these factors, or from disturbance of correlation."

Dr. BARNES then goes on to elucidate the philosophy of each of these factors, and in a most succinct and concise manner intimates that when one of them—the third factor—is at fault, viz., when there is a deficiency of expelling power, we may frequently overcome it, by *pushing out* the *fœtus* instead of dragging it by applying the *vis a tergo*—not the *vis a fronte*—or by combining both powers. To do this we have the hand of an assistant (or our own one hand), the lever, and the forceps. When the *fœtus* and channel are duly proportioned, but—

"the *position of the child is unpropitious*. In this case all there is to do is to restore the lost relation of position. The hand, the lever and the forceps are the instruments. *There is disproportion*. This may be of various kinds and degrees:

"(1). Disproportion that can be overcome without injury to the mother, and with probable safety to the child.

"(2). Disproportion that can be overcome without injury to the mother, but with necessary sacrifice to the child.

"(3). Disproportion that can be overcome with possible or probable safety to both mother and child."

How does Dr. BARNES overcome these disproportions? For the first he uses his hands and the forceps. For the second, by reducing the bulk of the child, and the murderous perforator and crotchet come into play, together with the cranioclast, cephalotribe and forceps-saw. For the third, the awful alternative of the Cæsarean section.

His obstetrical armamentaria are well worthy of note, for by them, he, as a master workman, sets the craft at labor, or rather he puts his designs upon the obstetrical trestle-board, that the craft may work the problems :

"TO SAVE THE CHILD :

- "1. A lever.
- "2. A pair of long, double-curved forceps.
- "3. Robertson's apparatus for reducing the prolapsed funis.

"TO REDUCE BULK OF CHILD :

- "4. A craniotome, or perforator.
- "5. A crotchet.
- "6. A craniotomy-forceps.
- "7. Ramsbotham's decapitating hook.
- "8. A blunt-edged, straight bistoury, with a cutting edge three-quarters of an inch, to incise the os uteri in cases of extreme contraction or cicatrization. A hernia-knife answers very well.

"TO INDUCE OR ACCELERATE LABOR :

- "9. A Higginson's syringe, fitted on my plan, with a flexible uterine tube (nine inches long), which serves for the injection of iced water or perchloride of iron, to arrest hæmorrhage, and also serves to expand.
- "10. A set of my caoutchouc hydrastic uterine dilators.
- "11. Three or four elastic male bougies (No. 8 or 9).
- "12. A porcupine quill to rupture the membranes.
- "13. A flexible male catheter. (The short silver female catheter is often useless, and is generally less convenient than the flexible male catheter).
- "14. A pair of scissors and thread.

"FOR THE CÆSAREAN SECTION :

- "15. A bistoury.
- "16. Sutures, silk and silver.

"MEDICINES :

- "1. Chloroform and inhaler.
- "2. Laudanum.
- "3. Hoffman's anodyne.
- "4. Ergot of rye.
- "5. Solution of perchloride of iron. The liquor ferri perchloridi fortior (Brit. Pharm., 1867). An ounce of this diluted with six ounces of water is an efficient hæmostatic."

We certainly can recommend these articles to all accoucheurs who live in a city, and who do a large consulting practice ; but to a country practitioner they would be very cumbersome to carry, although it would be a very difficult task for him to decide beforehand when he might be called upon to use any one of them.

Many children are lost by the physician not having his forceps with him, and doubtless, too, many mothers owe much of their subsequent ill-health to the same cause, and possibly their lives might be saved by timely and judicious instrumentation.

Dr. DAWSON (the editor) adds also a list of the articles contained in the obstetric cases of Professors THOMAS, ELLIOTT and BUDD, of New York. Dr. BARNES then explains the instruments, to which explanation we must refer the reader. However, we believe it to be the hand of the accoucheur, more than the instrument, which accomplishes the result. The long forceps of HODGE are those which we prefer, and we have ever found them to answer all purposes, never slipping, and easily locked. With regard to prolapsed funis, what is known as "Thomas's method" is preferable to any repositor whatever. Whether this be "*Thomas's method*" or "*Papin's method*" must be settled only upon a comparison of dates, as both of these gentlemen have recommended it for years, neither of them knowing the other had done so when first promulgating it.

We now pass on to the second chapter, which treats of the "Powers of the Forceps—the Force by which it holds the Head—the Compressibility of the Head." We must say that these questions are far from being settled, and we are left in that condition of doubt which has made many distinguished obstetricians deny the power of the forceps for compression, only so far as they facilitate the moulding of the head, and only so much, as is frequently found in non-artificial deliveries, in tedious labors. Dr. BARNES states that "by simply lengthening the blades and shanks, and giving the blades an additional curve adapted to the curved sacrum, we can reach the head detained at the brim of the pelvis. We increase the leverage and tractile power, and we gain a moderate compressive power." Is this not rather a packing of the caput succadaneum and ecchymosed scalp and sub-cellular connective tissue into a more compact form, whereby, by certain traction and position, we can drag the head by a *vis a fronte*, because the *vis a tergo* is deficient? The experiments of BAUDELLOCQUE, SIEBOLD, OSIANDER, VELPEAU, JOULIN, and CHASSAGNY, have by no means established that "continuous compression and traction by powerful forceps upon the head, in difficult labor, have completely proved that a degree of moulding may be effected beyond that commonly observed." Notwithstanding the high authority of Dr. BARNES, we are not yet convinced

of it. The "difficult labor," in all probability, produced the scalp tumefactions, and the forceps did not compress the bones one-fourth of an inch, nay, not an eighth. SIMPSON'S advice is to turn in such instances, believing that the parietal bones can be made to overlap from the base of the skull towards the vertex. How can the forceps compress without seriously involving the child's life? Is not the vault of the cranium filled with brain, and membranes, and blood? Are not these membranes very delicate? Can the amount of force requisite to produce a compression of from a quarter to a third of an inch in the diameters of the head be applied without endangering the integrity of the contained structures? The proofs to the contrary are not yet sufficiently strong to be convincing. In proof of these views, we refer the reader to cases 98 and 99, in ELLIOTT'S *Obstetrical Clinic*, where, in one instance, the child was lost from rupture of blood-vessels in the brain and arachnoid, and in the other the mother, as well as the child, was lost. In this instance, the child's brain tissue was broken, and a clot found in the cerebellum.

But we must proceed, only noticing the diagrams as being very good, as illustrative of the views of BARNES in instrumental moulding of the head, and the action of the lever on the head. The question of "short forceps" is well put, and the author's objections very carefully stated. He has the endorsement of the profession by recommending the long forceps as being free from all the objections to the short forceps. We can always use the long forceps, whether we deliver from the superior strait or from any position lower down. In the application of the long forceps he presents nothing new, save some very spirited wood-cuts, which materially facilitate the student in understanding the whole question. We would not put the woman on her left side, as do all, or almost all, of the English accoucheurs, but place her on her back, which the American editor mentions as being the common practice of American obstetricians.

We now come to that portion of the book which stamps the author as truly great, and which ranks him as the first of all who have attempted to elucidate the vexed question of dystocia. Criticism here would be superfluous, as it could not add to or detract from the beauty and ingenuity of the philosophy and mechanics whereby Dr. BARNES treats of "arrest of the head," "delivery of the after-coming head," "mechanism of brow and face presentations," "the forceps in disproportion of the pelvis,"

etc., etc. Nothing can be more fascinating than the tenth and fifteenth chapters, inclusive, wherein we see unfolded, link by link, the chain of evidence by which a painstaking and observing physician has worked out the dynamics and mechanics of normal and abnormal foetal positions, versions and evolutions, spontaneous and artificial. The views on the mechanism of spontaneous version are graphic, and are handsomely illustrated by a series of drawings, which are peculiar and original to the author, who is almost axiomatic in his propositions concerning the right-line action of the force of the uterus. Any deviation from this force, which, in a healthy labor, follows the direction of a perpendicular to the plane of the pelvic brim, may pass into a head-labor, but most frequently results in a shoulder presentation, with all its concomitant difficulties. How Nature overcomes such by "spontaneous version" is the subject matter of chapter xii, and is well worthy the attention of philosophers as well as obstetricians, particularly that part referring to the differentiation of "spontaneous version" and "spontaneous evolution." The rules laid down for extraction after, as well as the description of, the three acts of "bi-polar podalic version," as found in chapters xvi and xvii, are simply complete.

We might go on, *ab ortu usque ad occasum*, and find something to admire in the succeeding chapters, so much are we impressed by their perusal. But we must overlook much that is worthy of attention, and omit a great deal that ought to be examined, in our province as reviewers, because there are too many salient points which have always exercised obstetricians as regards the life of the child, or of the mother, or of both.

In brief, Dr. BARNES's views are, that "*where the conjugate diameter measures from two and three-quarters to three inches, delivery by turning should be the complement to the induction of labor at seven or eight months.*" This rule covers the whole question of craniotomy when the accoucheur has the patient under charge during that period of pregnancy, and is a most admirable suggestion to the physician's mind that it is well to carefully measure the diameters of the pelvis of all primiparae, and all women who may have had a prior difficult labor.

The views of Dr. BARNES as regards delivery by craniotomy, by cephalotripsy, and by embryotomy, are sound to the core, and we endorse them most emphatically. We give his conclusions on artificial deliveries:

"In the possibility of attendant danger, craniotomy differs essentially from the forceps. While under craniotomy mischief or death may ensue, the forceps, if used rightly and in suitable cases, is an innocuous instrument. Statistics, professing to show that the mortality from the use of the forceps is at the rate of one in twenty, are flagrant examples of the fallacy of arguing '*post hoc, ergo propter hoc*.' Properly speaking, the mortality from the forceps is *nil*. Women die because the instrument is used too late."

Dr. BARNES states, with great truth, that the "Cæsarean section occupies a doubtful place between conservative and sacrificial midwifery. It is resorted to with a feeling akin to despair for the fate of the mother, which is scarcely tempered by the hope of rescuing the child," etc., etc. That the operation must be studied under two aspects, viz., "as being imposed by *necessity* as the *only* means of effecting delivery, and, as one of *election*, deliberately chosen as the *best* means of effecting delivery. The distinction is very important to be borne in mind; for, under the fatal fascination which seems to oppress the reasoning faculty in statisticians, conclusions drawn from figures representing the most dissimilar facts are accepted and put forth as the legitimate deductions of experience. . . . But what assurance have we that an undue proportion of successful cases are recorded, unsuccessful ones remaining in the dark?"

The facts and arguments set forth by Dr. BARNES, borne out by PAJOT, of Paris, KELLY, OSBORNE, Prof. D. DAVIS, BRAXTON HICKS, and others, would lead us to attempt to deliver a child *per vias naturales*, either by cephalotripsy, craniotomy forceps, or by BARNES's new method of embryotomy, when the conjugate diameter measures one and nine-tenths of an inch.

The Cæsarean section is more fatal to mothers than is craniotomy, and the mortality of children is so great that the operation ought to be chosen as one of necessity, when nothing else can be done, rather than one of election. The moral laws which should govern us should be those of Catholic Napoleon I, who told DUBOIS to save the mother and treat the case as he would any grocer's wife—and not that of Protestant Henry VIII, who told the accoucheur who attended his wife, Jane Seymour, 'to save the child, as he could get plenty of other wives.' We should do that which offers the best chance to the mother, and in so doing we have the consolation of knowing that in a large majority of cases the child is dead, and that if we hesitate and wait we may possibly lose both.

The chapters on the "Induction of Premature Labor," both that by Dr BARNES and that by Prof. THOMAS, of New York, (interpolated by the American editor), are most excellent, and a knowledge of these laws, with their practical illustration and application, would frequently relieve us of the unpleasant and disagreeable duties which require craniotomy or Cæsarean section.

The book closes by some most excellent chapters on "Hæmorrhage," which should not only be perused, but studied, by all whose duties are obstetrical. We have, in several instances, seen some terrible results from hæmorrhage, in the hands of ignorant physicians and midwives, which, in all likelihood, would have been averted had the cases been seen earlier by competent practitioners.

Dr. BARNES treats of hæmorrhage before birth as caused by placenta prævia, and accidental; ("concealed accidental" being interpolated by the American editor, and is from the pen of Dr. WM. GOODELL, of Philadelphia. Usually such additional chapters by editors are very useless—sometimes damaging; but we must compliment Dr. DAWSON on this, as well as other chapters, indicating great good taste).

The causes of hæmorrhage after birth are treated under the following heads: (a) Cases in which the placenta is retained. (b) Cases in which bleeding persists, or occurs after the removal of the placenta. (c) Cases in which bleeding persists, or occurs some days after labor—the so-called "secondary puerperal hæmorrhage." Those remarks are exhaustive, and we can only reiterate that they are to be studied, and well studied, too.

The last chapter, on "Head-Locking of Twins," properly belongs to the chapter following "Breach Presentations," as noted by the editor, and is a very ingenious exposé of action in such cases.

In fine, we hail "Barnes's Obstetrical Operations" with delight, and we take great pleasure in recommending it as the book which demonstrates to the profession, that the surgeon accoucheur requires more skill, more art, and more science, than any other practitioner in chirurgery.

M. A. P.

A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. By J. FORSYTH MEIGS, M.D., and WILLIAM PEPPER, M.D. Fourth edition (of MEIGS on Diseases of Children), revised and greatly enlarged. Philadelphia: Lindsay & Blakiston, 1870. 8vo., pp. 921. Price, cloth \$6.00, leather \$7.00.

[For sale by the St. Louis Book and News Co.]

In these days of rapid increase in medical knowledge, a work upon Diseases of Children cannot long hold a pre-eminent position with the public, unless its author be an active worker, continually re-establishing his foothold, and sustaining himself by tolerably frequent editions. The time that has elapsed since the appearance of the third edition of MEIGS on the Diseases of Children has been sufficient to impose a great deal of labor upon its author and Dr. WILLIAM PEPPER, his associate in the preparation of this new work, which they have chosen to call a fourth edition.

It is not easy to fix the proper bounds of a work like this if it should treat not only of the peculiar diseases of childhood, but also of the peculiarities of general diseases when they attack children. Our authors have confined themselves to no contracted limits, and among the numerous articles that they have added to their work we find that, beside treatises upon intussusception, sclerema, recently-investigated forms of infantile paralysis, etc., considerable space has been given to rheumatism, and even typhoid fever. How satisfactory their delineations of disease are, we wish there was some way of showing short of making too long quotations from their pages. Frequent reference to them during the past few months since publication has shown that the book is well up to the times. In fact, our only disappointment has been in finding so little said upon thermometrical observations on the body in their relation to diagnosis and prognosis. After saying (p. 37): "As an indication of the intensity and character of the disease in febrile attacks, we have seen that the frequency of the pulse is little to be depended on",—two tables are given of the temperature of the body during the first few days of life, together with Mr. FINLAYSON'S laws of diurnal variation, all in the inconvenient scale of REAUMUR, which the average reader is obliged to laboriously reduce. The further information afforded under this head is meagre.

With regard to the style of treatment advocated, those who were pleased with the tendencies of the recent work of Dr. J. L.

SMITH, of New York, will read with pleasure such passages as these (p. 100): "Since the publication of the last edition of this work, our increased dislike of the administration of mercury to children in large and frequently repeated doses, and the constant observation that even its free use does not appear to arrest the course of true croup, or prevent the formation of membranous exudations, have led us to abandon entirely its employment in this disease." On page 183 we read: "In former years, in obedience to the prevailing rules of the day, we gave calomel in very moderate quantities in some cases of pneumonia. We never felt sure that it was of any special service, and of late years have abandoned it altogether. It is one of those drugs which, we think, ought not to be given, except under some very clear indication. Such indications rarely exist in pneumonia, and therefore we do not prescribe it." They express their disapproval of the use of calomel in diarrhœa at considerable length, citing, in support of their opinions, various authorities, whom they call "very good company," as they doubtless are. Tartar emetic seems to be as little a favorite with them (see p. 99): "We would, however, strongly discountenance the employment of tartar emetic as an emetic, under any circumstances, in children." Instead of this drug they recommend, "in strong and vigorous children, with high febrile heat and rapid circulation, small doses of the precipitated sulphuret of antimony, always watching its effects carefully."

In conclusion, we feel justified in recommending this work to those who wish to be guided by sound and recent information in therapeutics and the nature of disease, and we are inclined to think that it is entitled to a position that could not have been claimed by any of its former editions at their publication.

C. E. B.

MEDICAL DIAGNOSIS, WITH SPECIAL REFERENCE TO PRACTICAL MEDICINE. *A Guide to the Knowledge and Discrimination of Diseases.* By J. M. DA COSTA, M.D., Lecturer on Clinical Medicine, and Physician to the Pennsylvania Hospital, etc. Illustrated. Third edition, revised. Philadelphia: J. B. Lippincott & Co. 8vo., pp. 844. Price, cloth \$6.00, sheep \$7.00.

[For sale by the St. Louis Book and News Co.]

In the preface to the first edition, the author says: "My chief aim in writing this work has been to furnish advanced students

and young graduates of medicine with a guide that might be of service to them in their endeavors to discriminate disease. I have sought to offer to those members of the profession who are about to enter on its practical duties a book on Diagnosis of an essentially practical character—one neither so meagre in detail as to be next to useless when they encounter the manifold and varying features of disease, nor so overladen with unnecessary detail as to be unwieldy and lacking in precise and readily applicable knowledge.”

The excellence of the plan of the work, and the satisfactory manner in which it had been wrought out, were attested by the rapid sale of the first edition. To the second edition large additions were made, chiefly to the chapters on Diseases of the Brain, of the Larynx, of the Blood, on the Urine, and on Parasites, and in the section on Abdominal Enlargement. By comparing the second and third editions, it will appear that the latter has been improved by the revision and by the introduction of considerable new matter, particularly into the chapter on “Diseases of the Brain, Spinal Cord, and their Nerves.” Elsewhere the author has made such alterations and additions as have been suggested by his own observations or the trustworthy observations of others. We heartily commend it to both students and practitioners of medicine, feeling sure that they will find it a book of great value to them.

J. M. L.

NOTES ON THE PHYSIOLOGY AND PATHOLOGY OF THE NERVOUS SYSTEM, with reference to Clinical Medicine—

(a) Disseminated Sclerosis of the Brain and Spinal Cord; (b) Annular or Cortical Sclerosis of the Spinal Cord. By MEREDITH CLYMER. M.D. Univ. Penn., Fellow of the Coll. Phys. Philad., etc. New York: D. Appleton & Co., 1870. 8vo., pp. 53. Price \$0.50.

This pamphlet, which is reprinted from the *N. Y. Medical Journal*, of May, 1870, is a most admirable summary “of the recent investigations into the physiology and pathology of the nervous system, which have a bearing upon clinical medicine.” So important are the recent advances made in this direction, and so valuable the contributions which science’s golden harvest has freshly gleaned through her indefatigable and earnest votaries, that those who claim, as all should, to keep pace with her progressive strides, should avail themselves of the present opportunity afforded for information.

After a most lucid definition of the term sclerosis, the learned author divides sclerosis of the nervous centers into four principal varieties: Disseminated, Cortical, Fascicular, and Diffuse. He then gives a satisfactory and comprehensive definition of the first form, of disseminated, or multilocular sclerosis of the brain and spinal cord, the consideration of which forms almost the exclusive subject of the pamphlet. A full history of the affection is next in order, which traces the first mention or description of a case in which it occurs to the year 1766—a case observed by Dr. MATY. To Dr. CHARCOT is attributed the honor “of distinguishing this affection from other paralytic disorders, and notably from paralysis agitans, of recognizing its pathological individuality, and tracing its clinical history.” In considering the clinical history of sclerosis, Dr. CLYMER recognizes three divisions: the cerebral, spinal, and cerebro-spinal form, according to the “territorial distribution” of the pathological lesions. Next is presented an exhaustive “consideration of the special symptoms, which is of the greatest assistance in the study of the affection.” The “patho-anatomy” and “histological alterations and microscopical appearances in different stages,” are given at length, illustrated with well-executed wood-cuts, and afford a vast amount of information in this new field. The “differential diagnosis,” “course and duration,” “causes and pathogeny,” “prognosis,” and “treatment,” next follow, with an “appendix” and an “analysis of sixteen cases of disseminated sclerosis.”

This pamphlet is elaborate, erudite, and comprehensive, affording much information in a small compass, and should find its way to the hands of every medical thinker. To the practitioner its importance cannot be exaggerated for the correct appreciation of the pathology, diagnosis and treatment of a recently described affection. To mistake it for paralysis agitans, “with which heretofore it has invariably been confounded,” is now an unpardonable blunder, for which there can be no apology.

Prof. CLYMER's well-known and well-merited reputation as an author, medical critic, editor and commentator, is a sufficient guarantee that this valuable little pamphlet will meet with the attention, study and appreciation that it most certainly deserves.

J. K. B.

ARCHIVES OF OPHTHALMOLOGY AND OTOLOGY. Edited and published simultaneously in English and German, by H. KNAPP, M.D., and S. Moos, M.D. Vol. I, No. 2. New York: Wm. Wood & Co., 1870. 8vo., pp. 359.

This second number of KNAPP & Moos's Archives completes the first volume—an octavo of 723 pages, with five chromo-lithographic plates of the fundus of the eye, and ten lithographic plates, besides a considerable number of wood-cuts. A notice of the contents of the first number may be found in the present volume of this Journal, page 71. The second number contains twenty-five papers, of which eleven are by the editors, six from other German sources, and eight by American authors. Of the more elaborate papers we would especially call attention to an able experimental research *On the Mechanism of the Ossicles of the Ear*, by Dr. ALBERT H. BUCK, of New York, after suggestions and with the assistance of Prof. HELMHOLTZ, and to a very interesting article upon *The Mechanism of the Organ of Hearing*, by Dr. H. KAISER, of Dieburg. Both papers are admirably clear, and, taken together, they afford a most satisfactory demonstration of the part performed by the ossicula auditus in the function of hearing. Besides these physico-physiological investigations, there are important clinical observations on the ear, by Professor Moos, and an interesting case of double hearing, by Dr. KNAPP; also a suggestion for a modification of WILDE's snare, by Dr. C. J. BLAKE, of Boston.

The ophthalmological portion of this second number is perhaps less interesting than the corresponding part of the first. We find, nevertheless, an excellent paper by Prof. BECKER, of Heidelberg, upon *The Diagnosis of Intra-ocular Sarcoma* in its earlier stages; a case of *Melanotic Sarcoma of the Ciliary Body and adjoining Choroid*, by Dr. KNAPP; a case of *Large Cyst of the Iris cured by Operation*, by Dr. KNAPP; a case of *Cysticercus Intraocularis*, with dissection of the enucleated eyeball, by Dr. J. HIRSCHBERG, of Berlin; a case of *Granulation Tumor of the Iris*, by Drs. HIRSCHBERG, of Berlin, and STEINHEIM, of Bielefeld; and an elaborate experimental research *On the Pathology of the Vitreous*, by Dr. HERMAN PAGENSTECHER, of Wiesbaden. Besides these papers, which are all valuable, we notice an ingenious and very successful blepharoplastic operation by Dr. KNAPP, and papers by Drs. P. KEYSER, of Philadelphia; B. A. POPE, of New Orleans; J. S. HILDRETH, of Chicago, and

T. R. POOLEY, of New York. A report of a case of detachment of the choroid, observed in PAGENSTECHER's clinique, and a confirmation of DONDERS's and KNAPP's denial of the alleged rotation of the eyes in lateral inclination of the head, from experiments made by Dr. J. AUB, under KNAPP's guidance, complete the list of new matter in this department. Finally, KNAPP has somewhat elaborated his calculations *On the Influence of Spectacles on the Optical Constants and Visual Acuteness of the Eye*, published last year in the Transactions of the American Ophthalmological Society, and has similarly reproduced, from the Transactions of the American Otological Society, his case of *Purulent Otitis Media, with Double Hearing*.

The work of translating the part of the Archives originally written in German appears to be much better done than in the first number; the proof-reading is also better, and commendable care has been shown to avoid certain unnecessary technicalities of expression which, in the first number, tended to repel the general reader.

We are sorry to see that this really commendable enterprise has not received more hearty coöperation from the best workers in ophthalmology in this country. We doubt, also, the propriety of copyrighting Archives like the present, unless with the proviso that each article shall remain the property of its author, rather than of the editor in whose name the entry is made.

J. G.

Extracts from Current Medical Literature.

OPHTHALMOLOGY AND OTOTOLOGY.

8. *On the Direction of the Principal Meridians in the Astigmatic Eye.* By Dr. H. SNELLEN, Utrecht. (*Tienjarig verslag van het Nederlandsch Gasthuis voor Ooglijders, met wetenschappelijke bijbladen.* Utrecht, 1869.)

SNELLEN has tabulated, in this paper, the elements of 278 cases of astigmatism, investigated in connection with Prof. DONDERS during the years 1864-8. Excluding a few cases in which the determination was possibly deficient in accuracy, he has arranged a diagrammatic representation of 238 left and 239 right eyes, showing in each the direction of the meridian of greatest refraction, and noting whether the refractive defect was by excess or deficiency.

From the data derived from the examination of these 477 eyes, SNELLEN draws several important deductions regarding the direction of the principal meridian of greatest curvature; this was

Vertical	in 238 eyes, or 50 per cent.
Horizontal	in 43 eyes, or 9 per cent.
Inclined	in 196 eyes, or 41 per cent.

In the cases in which the meridian of greatest refraction is inclined to the vertical, the inclination occurs in all possible degrees with about equal frequency.

The inclination of the meridian of greatest refraction may be either to the right or to the left of the vertical, and in about an equal number of cases.

These observations hold true alike in the cases of myopic, and of hypermetropic astigmatism.

The grade of astigmatism seems to have no influence upon the direction of the principal meridian.

The direction of the principal meridian is, in the majority of cases, symmetrical; i. e., if in one eye the meridian of greatest refraction is inclined toward the right of the vertical, in the other eye it will generally be found to incline to the left of the vertical; still the inclination to the vertical, although generally symmetrical as regards direction, is often unequal in degree in the two eyes.

Of the 477 eyes examined, the defect was by excess (myopic astigmatism) in 269, or 57 per cent.; it was by deficiency (hypermetropic astigmatism) in 208, or 43 per cent.

Great improvement in vision may be obtained by the use of properly selected cylindrical glasses; still only in a limited number of cases (perhaps one half) can perfectly normal acuteness of sight be attained.

Of the 278 cases reported, 192 were in men and 86 in women.

The ages of 252 persons, of whom the record has been kept, were as follows:

Under 10 years	4
From 10—20.....	87
“ 20—30.....	70
“ 30—40.....	43
“ 40—50.....	24
“ 50—60.....	17
Over 60.....	7

These statistics are pregnant with other interesting deductions, of which we have worked out a few for the purpose of testing, by this large and admirable series, our former conclusions drawn from a much smaller number of cases.*

(1.) Astigmatism occurs as frequently in connection with *myopia* as with *hypermetropia*.

Out of 72 eyes with compound astigmatism, we found of

Myopia with astigmatism.....39 cases, or 53 per cent.
Hypermetropia with astigmatism....33 cases, or 47 per cent.

So out of 198 eyes with compound astigmatism from SNELLEN'S tables, we find of

Myopia with astigmatism.....123 cases, or 62 per cent.
Hypermetropia with astigmatism... 75 cases, or 38 per cent.

* See *Am. Journ. Med. Sciences*, Jan. and July, 1867; Transactions of American Ophthalmological Society, 1867-8; *St. Louis Med. and Surg. Journal*, July, 1869.

This proposition, which is the reverse of the opinion originally held by DONDEES, is now established beyond question.

(2.) Mixed astigmatism is a comparatively rare, but nevertheless a well established, form of the anomaly.

Out of 84 astigmatic eyes, we found unmistakable mixed astigmatism in

3 cases, or 3.5 per cent. ;

so out of 477 astigmatic eyes tabulated by SNELLEN, we find of mixed astigmatism

20 cases, or 4.2 per cent.

(3.) Astigmatism generally occurs in both eyes.

Out of 46 persons with astigmatism, in whom the refractive condition of both eyes could be determined, we found

Astigmatism in one eye, the other emmetropic, in 7 cases, or 15 per cent.

Astigmatism in one eye, the other ametropic...in 3 cases, or 6.5 "

Astigmatism in both eyes.....in 36 cases, or 78.5 "

So out of 256 patients similarly selected from SNELLEN'S tables, we find

Astigmatism in one eye, the other emmetropic, in 9 cases, or 3.5 per cent.

Astigmatism in one eye, the other ametropic...in 25 cases, or 10 "

Astigmatism in both eyesin 222 cases, or 86.5 "

(4.) The cases of binocular astigmatism fall under two great divisions, according as the direction of the meridian of greatest refraction is strictly *symmetrical* or *unsymmetrical* in the two eyes.

Out of 36 cases of binocular astigmatism, we found the direction of the principal meridians

Symmetrical and equal in 10 cases, or 28 per cent. ;

Unsymmetrical or unequal in 26 cases, or 72 per cent.

From SNELLEN'S 222 cases of binocular astigmatism the law of symmetrical development of the refractive defect is still more strikingly shown ; we find the direction of the principal meridians

Symmetrical and equal in 138 cases, or 62 per cent. ;

Unsymmetrical or unequal in 84 cases, or 38 per cent.

Of our 10 symmetrical cases, the meridian of greatest refraction was

Vertical in 3 cases, or 30 per cent. ;

Horizontal in 1 case, or 10 per cent. ;

Inclined in 6 cases, or 60 per cent.

Of SNELLEN'S 138 symmetrical cases, the same meridian was

Vertical in 84 cases, or 61 per cent. ;

Horizontal in 17 cases, or 12 per cent. ;

Inclined in 37 cases, or 27 per cent.

(5.) Of those cases of binocular astigmatism in which there is deviation from perfect symmetry, a few (15.5 per cent. GREEN and SNELLEN) approximate to the law of symmetry within a range of 6°. Certain others (23 per cent. GREEN, 21.5 per cent. SNELLEN) show a tendency toward symmetry in the fact that the inclination of the meridian of greatest refraction is in opposite directions in the two eyes. The rest (61.5 per cent. GREEN, 63 per cent. SNELLEN) are absolutely unsymmetrical, presenting a deviation from the vertical or horizontal either in one eye only, or in both eyes to the same side of the vertical.

The complete clinical investigation of any case of astigmatism consists in two distinct observations ; 1st, the direction of the principal meridians must be accurately determined, and 2dly, the difference of refraction in the two principal meridians, or the degree of astigmatism. The method adopted by SNELLEN for determining the direction of the principal meridians is by a stellate arrangement of lines slightly modified from our "Test Lines for Astigmatism," first published in Utrecht in 1866.

SNELLEN has also adopted our plan of notation,* referring the axis of greatest refraction to the vertical, and designating all degrees of inclination in which this axis falls in the right upper quadrant by the *plus* (+) sign, and in the left upper quadrant by the *minus* (−) sign. Thus the highly important relation of symmetry of direction in the two eyes is shown by identical quantities, but with opposite signs.

SNELLEN'S conclusions regarding the degree of visual improvement attainable by the use of neutralizing cylindrical or spherico-cylindrical glasses coincide perfectly with those which we announced in 1867, viz., that substantially perfect vision may be attained in all cases in which the eye is otherwise perfect, but that in many cases (perhaps about one half) other defects are present which limit the degree of attainable improvement.

J. G.

* Transactions of the American Ophthalmological Society for 1867.

9. *On Diminished Range of Accommodation as a Cause of Strabismus Convergens.* By Professor DONDERS, of Utrecht. (*Tienjarig verslag van het Nederlandsch Gasthuis voor Ooglijders, met wetenschappelijke bijbladen.*) Translated, for the St. Louis Med. & Surg. Journal, by JOHN GREEN, M.D.

Since the connection has been shown between strabismus convergens and hypermetropia, we are in the habit of inquiring into the state of the refraction in every case of squinting. Almost always we find hypermetropia, even without having recourse to atropia, and in the exceptional cases in which it is not detected we conclude that the deviation is secondary, arising from paralysis, spasm, or inflammation, or that it is congenital. Among cases in this category, I have found a few—during the past year two or three—in which there was no hypermetropia, but in which another condition existed which equally explains the origin of the strabismus. I mean paresis of the accommodation; in other words, a pathologically diminished range of accommodation.

Ordinary presbyopia depends upon a restriction of the range of accommodation, yet it never gives rise to strabismus. This need not surprise us. In the first place, in somewhat advanced life the sphere of muscular action has become too fixed and stable, so that, even with coexisting hypermetropia, strabismus is no longer developed, and, secondly, on account of the change in the relative accommodation, an increase of convergence no longer exerts much influence upon the position of the near point.

In cases of a moderate degree of paresis of accommodation in youth, it is altogether different. Here increased convergence has great influence in increasing the distinctness of vision, a fact of which, as appears from a review of observed cases, advantage is unwittingly taken.

The type of strabismus arising in this way agrees perfectly with that which depends on hypermetropia. The abnormally great distance, for the time of life, of the near point from the eye leads us to suspect the existence of latent hypermetropia, and it is only by paralyzing the accommodation by atropia that we discover the absence of any anomaly of refraction.

This mode of origin of strabismus is really identical with the usual mode of development from hypermetropia; in both cases the effort to see distinctly at short distances lies at the origin of the deviation. By dropping a weak solution of atropia into the

eyes we can produce a light grade of paresis of accommodation, and under the influence of this paresis, in the case of young subjects, the deviation will occasionally appear just as in the case of the artificial hypermetropia produced by concave glasses.

Whenever strabismus convergens is observed as a sequel of angina diphtheritica, with paresis of accommodation, we may now ask whether the cause of the deviation is not to be sought in the paresis, and whether, therefore, the squint is not rather of spasmodic than paralytic origin.

10. *An additional Method to determine the Degree of Ametropia.* By WM. THOMSON, M.D., Philadelphia.

[*Amer. Journ. Med. Sciences*, October, 1870.]

Dr. THOMSON's method is based on the old experiment of SCHEINER (1625) which consists in looking at a point of light through a card perforated by two pin-holes, or narrow slits, placed somewhat nearer to each other than the diameter of the pupil. If the eye happens to be accurately adjusted for the distance of the point of light, it will be seen distinctly and single; if, however, the adjustment of the eye is for any distance greater or less than that of the light, the object will appear doubled. By employing this test with a distant point of light, such as a minute candle or gas flame, we are able readily to detect any refractive defect that may be present, and by measuring the distance apart of the two images, we may easily calculate its degree. By means of the card with the two pin-holes, it is easy to test the refraction of the eye in its different meridians, and so to detect and measure any inequality in refractive power; in other words, the method is available for detecting and measuring astigmatism, as well as simple myopia and hypermetropia. From several observations which we have made with this method, we are convinced that it is a valuable addition to former means for the subjective examination of the eye.

11. *Luxation of the Crystalline Lens, with conclusions regarding the Mechanism of Accommodation.* By M. DUFOUR.

[*Brit. and For. Med.-chir. Review*, July, 1870; from *Centralblatt für die Medicinischen Wissenschaften*, March 12, 1870.]

M. DUFOUR has observed three cases of spontaneous luxation of the crystalline, occurring in three brothers and sisters. The

very high degree of myopia observed is made the basis of an argument in support of the theory that the increase in thickness of the lens in accommodation is dependent on the elasticity of that organ coming into play whenever the suspensory ligament is relaxed through the contraction of the ciliary muscle.

A case even more remarkable, inasmuch as four members of the same family (the mother and three sons) were affected, is recorded by Mr. DIXON (Royal London Oph. Hosp. Rep., Jan., 1858), but the description is too imperfect to admit of any conclusion other than that there was decided myopia (as in DUFOUR's second case) independently of the abnormal condition of the lens. Two cases are also reported by v. GRAEFE (*Archiv für Ophthalmologie*, Band I, Abt'g II).

None of these cases, however, warrant DUFOUR's conclusions regarding the mechanism of accommodation in the normal and uninjured eye. In both DUFOUR's and DIXON's cases, and one of v. GRAEFE's, the dislocation, and consequent separation of the lens from its ciliary attachments, was of long standing, and possibly congenital. The tendency of the transparent lens, under these circumstances, to become reduced in its diameter, has been asserted by v. GRAEFE (*Archiv*, III, II, p. 378), and may depend on causes wholly foreign to that assumed by DUFOUR.

The other case reported by v. GRAEFE was evidently one of a very high grade of myopia before the luxation occurred, and is therefore not to be cited in this connection.

In a case reported by Mr. BOWMAN (Lectures, p. 136) there was myopia of about one-sixth; but here also the patient had been "habitually short-sighted."

The only exact observation relevant to the question at issue is by H. D. NOYES (*Archives of Ophthalmology and Otology*, Vol. I, No. 1). In this case, of traumatic dislocation of the lens wholly into the anterior chamber, in a man forty-five years old, there was myopia of one-sixth, assuming that the refraction of the injured eye was originally the same as that of its fellow. Of this increase in the refractive power of the injured eye, a part, at least, must have been due to the displacement forward of the lens, leaving a comparatively small effect to be attributed to any change in its convexity.

In order to determine how far the refraction of the eye is increased by a mere advancement of the lens to a position in which it is in contact with the cornea, DUFOUR examined a

number of eyes immediately after the operation of paracentesis corneæ. The increase in refractive power was equivalent to about one-twelfth to one-fourteenth. This experimental result must, however, be corrected, in view of the fact that the eye-ball becomes somewhat smaller after being tapped, thus tending toward the production of hypermetropia, instead of myopia. The effect, therefore, of the lenticular change in DUFOUR's experiment must be somewhat greater than he has estimated it. On the whole, it must still be considered doubtful whether any very notable change takes place in the convexity of the crystalline lens as an immediate result of its detachment from its surroundings, through the rupture of the suspensory ligament.

12. *On Retinitis Leucæmica* (Liebreich). By Prof. OTTO BECKER, of Heidelberg.

[*Archives of Ophthalmology and Otology*, Vol. I., No. 1, 1869.]

Dr. BECKER reports two cases of retinal disease of the rare form described by LIEBREICH (1861) as one of the local manifestations of leucæmia, and named by him *retinitis leucæmica*.

The most striking change in the retina is in its color, which is of a conspicuously orange-yellow tint, especially when viewed by reflected daylight, instead of the usual gas flame. The veins, besides being large and tortuous, and of indistinct contour, showed a "bluish red tint, approaching to rose," while the arteries were smaller and of a "pale yellow color, with scarcely any admixture of red." In one of the cases, a small "shining, yellowish white spot" occupied almost exactly the situation of the macula lutea; it was surrounded by a dark red margin, adjoining which were several other spots similar to the first, but still smaller. These spots were evidently small swellings, or tumors, situated behind the retina, and pushing it forward. In the course of a month the red halo around the swelling disappeared, and the tumor itself was reduced to a dirty yellow discoloration of the retina. Other similar tumors, appearing a few weeks later, ran a similar course. Almost the only disturbance of vision was at the time of the existence of the tumor at the macula lutea.

13. *On the danger of exciting Inflammation of the Middle Ear, attendant upon the employment of Weber's (Thudichum's) Nasal Douche.*

The use of the nasal douche, in its various forms, has become so widely diffused as to give especial importance to certain recent warnings of danger to the middle ear from this now rather popular mode of treating nasal catarrh. Dr. ST. JOHN ROOSA, in his translation of v. TRÖLTSCHE on the Ear (2d ed., p. 368) mentions the occasional occurrence of severe headache, caused by the entrance of the injected fluid into the frontal sinuses. This may, however, he says, be avoided in a great degree by observing the precaution of holding the head in a tolerably erect position while using the apparatus.

Dr. ROOSA has more recently reported an important case of suppurative inflammation of the middle ear, complicated by metastatic abscess, which involved serious danger of a fatal termination. Discussing the origin of the inflammation in the ear, he remarks (*Archives of Ophthalmology and Otology*, Vol. I, No. 1):

"The exciting cause of the nasal inflammation was, I think, the use of the nasal douche. I am the more inclined to believe this from the fact that, on two previous occasions, I have seen the employment of the douche cause considerable trouble in the ear. In one instance the drum was ruptured by its use. . . . Instead of the douche I use the posterior nares syringe, which is safe, and pleasanter to the patient than WEBER'S method. Judging from the sensations described by the patients who use the douche, it is probable that fluid passes through the Eustachian tube into the cavity of the tympanum, and thus becomes a cause of inflammatory action."

Dr. H. KNAPP (Transactions of the American Otological Society for 1869) narrates a case of similar aural disease, dependent on the use, on a single occasion, of a cold-water douche. Warm water had been used for six months previously without unpleasant results. Referring to Dr. ROOSA'S case, just noticed, he adds that

"Dr. S. MOOS, of Heidelberg, in a note to the German translation of Dr. ROOSA'S paper, confirms the views of the latter author by stating that he has seen the fluid, injected into the nostril by WEBER'S douche, flow out of the ears in two cases of perforation of the membrana tympani. Although the application of the douche is not hurtful in such cases, they prove that water may penetrate through the tubes into the tympanic cavity. In one instance, also, Dr. MOOS saw a catarrhal inflammation of the middle ear arising from the employment of the douche."

Still later, Dr. C. I. PARDEE, of New York (*Medical Record*, Feb. 1, 1870), has reported two similar cases. In one

"there was a perforation of each membrana tympani from suppurative inflammation of the cavity of the tympanum. In the left external auditory canal were large granulations springing up from the bottom of that part, and from the margin of the membrana tympani. There was excessive secretion of pus. In the little groove posterior to the left auricle was a fluctuating swelling, which, on being opened, discharged a large quantity of pus, disclosing necrosed bone and an opening into the cavity of the tympanum. The condition of the patient was truly deplorable, and necessitated careful and protracted treatment, with but little prospect of great benefit to the left ear, while the danger in which his life was placed by the disease of the bones made the case the more serious and lamentable. From the intelligent and straightforward statement of the patient it was impossible to deduce but one conclusion—that while using the nasal douche, which had been prescribed for the cure of a nasal catarrh, while his ears were sound, fluid had passed into the cavity of the tympanum, and excited therein a purulent inflammation."

In the second case, Mr. M——, a medical student, relates his own experience with the douche, as follows :

"In the latter part of November, 1869, I was one day using the nasal douche with a solution of alum, and neglecting to open my mouth as widely as usual, a drop trickled down my throat. As I involuntarily swallowed, the mouths of the Eustachian tubes of course opened, and I was sensible that the fluid made its way into the tympanic cavity. Quite severe pain followed, which lasted several hours, and left me with impaired hearing. In other words, the accident caused a catarrhal inflammation of the cavity of the tympanum."

Dr. PARDEE thus judiciously sums up the evidence in the case :

"From the extensive use of the instrument there comes an increasing number of cases similar in character to those just narrated. That fluid, introduced into the nasal passages by means of it, finds its way into the middle ear through the Eustachian tubes, is a fact that cannot be doubted ; and the consequences have been so deplorable that it seems as if the proposition to abandon its use should be worthy of the most serious consideration, more especially as it is true that other means of cleansing and of introducing remedial agents into the nasal passages are quite efficacious. A posterior nares syringe will accomplish all that can be expected from the nasal douche, *i. e.*, cleanse the upper pharyngeal space and the floor of the nasal passages ; and, moreover, its use is attended with no possible danger.

"A nebulizer affords an excellent means by which to dislodge the secretion from the upper nasal space, and from between the turbinated bones, and the posterior nares syringe may then be used to wash it out. Through the agency of the same instruments remedial agents can also be introduced."

[JOHN GREEN, M.D.]

OBSTETRICS—DISEASES OF WOMEN.

6. *Operative Procedures on the Neck of the Uterus.* By Prof. M. A. Pallen, M.D., St. Louis.

[*National Medical Journal*, July, 1870.]

The author remarks: "For the treatment of *uterine* dysmenorrhœa, as distinguished from what many of the authors look upon as *ovarian*, it is premised that surgical interference, while it may not be all that has been claimed for it, is certainly the best and the quickest method. In enunciating this proposition it were well also to state, that something more is requisite besides the surgical method, which is only a portion of the treatment, but of very great importance. The disrepute in which has fallen the division of the cervix uteri, either bilaterally, posteriorly, anteriorly, or antero-posteriorly, has arisen from the fact that the cases were not well chosen, or that the site of the incision was not well located (as a bilateral division for ante-flexion, to be referred to further on), or frequently the wound not kept open, or that the always coexisting endometritis is not cured by subsequent proper local treatment; and in some instances where the operation had been made for sterility, as in those cases referred to by Dr. Sims, when the sterility did not exist in the female, but was owing to the male organs not furnishing or properly ejecting the spermatozoa. So many cases of uterine trouble are not recognized by the dynamical symptoms alone, and so many practitioners of medicine fail to explore the cavity per vaginam and per rectum, that when they ultimately make a physical examination, unless ulceration is apparent, the patient is dismissed with the information that she labors under liver trouble or dyspepsia, or some equally generalized diagnosis, amounting to nothing at all. It is for these reasons that gynecologists frequently have very serious obstacles to overcome before they can properly elucidate the case and arrive at a correct diagnosis.

Undoubtedly many cases of dysmenorrhœa cannot be relieved by local treatment alone, particularly when the trouble is coexisting with hypertrophy of the uterus (the plus condition of the physiological hypertrophy of menstruation), because of the intumescence of the organ, which interferes with its proper circulation and nutrition, and a consequent derangement of the entire generative circle of blood-vessels, from the bulb of the vestibule to the pampiniform plexus, begetting engorgement or œdema in and about the Fallopian tubes and ovaries. Such cases are most obstinate, and, as frequently takes place, when the canal is stricured either at the external os or in the cavity of the cervix, or at the internal os, or in all these sites, notwithstanding we overcome the stenosis by sponge tents or by incision, the tendency to proliferation, both in the connective tissue and uterus structure, is so great that it is next to an impossibility to keep patulous the openings we have made. Experience

has taught me to be chary of engendering hope of speedy relief or immediate prospective cure where hypertrophy exists, and more particularly that form of enlargement known as *sub-involution*, which is frequently not only attended with dysmenorrhœa, but also with menorrhagia.

Of course, we could never look for much benefit from surgical treatment, or scarcely any at all, from any known therapeutics, where the dysmenorrhœa coexisted with fatty degeneration of the uterus in totality, or with amyloid degeneration, or cancrroid or cancer (hopelessly incurable), or the deposit of tumors within the tissue itself.

It is with such cases, as flexions, strictures of the internal os, cavity of the cervix, or the external os, or frequently a combination of all of them, attendant with chronic catarrhal endometritis, and *uncomplicated with extra-uterine pathological conditions*, that it is not only very frequently proper and right, but the most successful method, to perform cervico-hysterotomy. Nearly four years ago I stated* that it was preposterous to claim absolute success for these uterine sections, but that they offered a readier, quicker, and more certain beneficial result than any other heretofore devised plan. I am still of this opinion, provided the class of cases come under the head above noticed. Where pelvic cellulitis or pelvic peritonitis had ever existed, I should hesitate to use the knife or scissors, and would only do so after all other plans had failed; yet I have seen more *frequent* trouble follow the use of sponge tents, bougies, sounds, and local applications to the cavity of the uterus, than from incisions through the cervix and internal os. Death has been known to follow such methods (sponge tents, etc.), although I have never seen it; but I have known many grave cases of peritonitis, cellulitis, and metritis, to supervene upon such treatment, sufficient to create the greatest apprehension as to the termination. . . .

From the experience I have had in the treatment of dysmenorrhœa, I have arrived at the following rules:

- A. Never to operate if pelvic cellulitis exists.
- B. To be careful about operating if traces of former attacks of pelvic cellulitis or pelvic peritonitis exist.
- C. If organic disease of the heart or lungs be present, not to operate, unless there is reason to believe that the dysmenorrhœa, by reason of the depressing influences of pain, aggravates these conditions.
- D. No operation is advisable if peri-uterine adhesions are such as to prevent a rectification of position in versions or flexions.
- E. Never to operate without preparing the patient both physically and mentally, because death has been known to follow. Physical preparation is proper for all serious operations; candor and honesty require of us always to lay before our patients every side of the question.

* Prize Essay on the Treatment of Certain Uterine Abnormalities. Am. Med. Ass'n, 1897.

F. To inform the patient and her friends that the operation is but a part of the process of cure.*

The experience of one hundred and twenty-four (124) operations induces me to present the above rules, or rather conclusions. In reviewing the history of these operations it is not at all improbable that some of these patients were submitted to risks, although I cannot recall any cases wherein there was permanent harm done, save in two fatal cases."

The author then gives a tabulated statement of one hundred and twenty-four divisions of the cervix uteri for dysmenorrhœa, from which it is seen that that there were—

- 2 deaths.
- 10 unknown results as to benefit or cure.
- 17 not benefitted by the operation.
- 19 benefitted without being cured.
- 61 cured, of which 15 were followed by conception.

It will be thus seen that eighty cases received benefit from the operation, and ten passed from under my treatment without any known result; and making the same proportion as in the known results, certainly six of them would be classed as benefitted; so it may safely be assumed that a favorable result was obtained in 69.36 per cent. of all cases operated upon.

Of this number 97 were married, or lived in an analogous condition, and 27 were single. Of this number in ante flexion 10 only of the married ones were cured, whilst 7 of the single ones got well—a most marked preponderance in favor of absolute incontinence during treatment. In 61 cures 22 of them were among the single women and 39 among the married.

There are no cases of retroflexion and retroversion combined in the unmarried, and only two cases altogether; and in ante flexion combined with anteversion, where we would be led to suspect its less frequent occurrence we find it most common, and in a very marked disproportion to the other cases, viz., fifteen among the married and only two in the unmarried. In ante-latero-flexion there are more unmarried than married. No case of uncomplicated retroversion occurs in the whole table. †

7. *On the Influence of Chloral on the Pain of Parturition.* By E. LAMBERT, Esq.

[*Edinburgh Medical Journal*, Aug. 1870; p. 113.]

In this paper, read before the Edinburgh Obstetrical Society, the author alludes to the fact that "when chloral was brought

*This proposition is based upon the fact that patients think that a surgical operation ought to abate all diseased structure, and this opinion is shared by many physicians and advocates as well as opponents of division of the cervix uteri.

† November 1.—Since the above was written, the author has operated on three other cases, two for ante flexion and one for stricture of the canal of the cervix. Two are under treatment, and one—the stricture case—has been discharged cured.—ED.

before the profession, Sir JAMES SIMPSON was foremost in prosecuting inquiry into its therapeutic value, and published a paper on the subject in the *Medical Times* (London). The author remarks that "chloral could not claim to supplant chloroform, since it abolished consciousness to a less extent, placing the patient, as it were, midway between consciousness and unconsciousness, and rendering her incapable of that control which is essential during the close of the second stage; but this admission only placed in a stronger light the admirable properties of the agent when applied to the relief of pain during the first stage of labor, at a period when it is generally conceded that chloroform is hurtful.

As *the* hypnotic of this first stage, chloral stands as yet unrivalled; we have only to remember that opium, our only sure refuge, must be administered with the knowledge that we are conspiring, though for a higher end, against the course of labor."

The author reports eleven cases, in the history of which, and in the comments upon them, some interesting points are developed. He arrives at the following conclusions:

1. Chloral is an agent of great value in the relief of pain during parturition.
2. It may be administered under favorable circumstances during and at the close of the second stage, with the result of producing absolute unconsciousness in the same sense in which we understand unconsciousness under chloroform.
3. When thus given successfully, it has this advantage over chloroform, that it requires no interference with the patient.
4. It is desirable to retain chloroform in the position which it at present occupies in midwifery, and to reserve for the agency of chloral the first stage of labor. If, however, chloral or some agent having analogous properties is found successfully to relieve the pain of uterine contraction, the use of chloroform will be restricted to a lesser period of the duration of labor, or to the facilitation of manual or instrumental interference.
5. It is demonstrated that a labor can be conducted from its commencement to its termination, without any consciousness on the part of the patient, under the sole influence of chloral.
6. The exhibition of chloral in nowise interferes with the exhibition of chloroform.
7. The proper mode of exhibiting chloral is in fractional doses of grs. xv every quarter of an hour until some effect is produced; and according to the nature of that effect the further administration is to be regulated. Some patients will require doses of 3i ; and it is better to produce an anæsthetic effect by 3iii given in the space of two hours than by 3i given singly.
8. The effects of chloral are continued beyond the period of com-

pleted parturition, and the repose experienced by the patient after her labor is one of the favorable circumstances to be noted in considering its application to child-birth.

9. Any stimulating effects, in the form of general excitability, occasionally observed during the administration, have passed away very rapidly.

10. Chloral not only does not suspend, but rather promotes uterine contraction by suspending all reflex actions which tend to counteract the incitability of the centers of organic motion.

11. Labors under chloral will probably be found to be of shorter duration than when natural, for unconscious contractions appear to have more potent effects than those which are accompanied by sensation of pain.

12. Experiments are required in order to determine whether there exists the same antagonism between ergot and chloral as is known to exist between strychnia and chloral.

13. The general conditions under which chloral is to be administered are the same as those which regulate the administration of chloroform, and the rules laid down by Sir JAMES SIMPSON in connection with this subject must be rigidly adhered to.

8. *The Duration of Gestation.* By Dr. AHLFELD.

[*Brit. & For. Med.-chir. Rev.*, July, 1870; from *Monatsch. f. Geburtsh.*]

Dr. AHLFRED investigates with great care the problem of the *duration of gestation*. Taking 219 cases observed by himself, by HECKER, and by VEIT, he finds that conception took place on an average 9'72 days after the *first day* of menstruation, and in 161 cases on an average 5'28 days from the *last day* of menstruation; but it most frequently took place within three days. FAYE arrived at a similar result.

As to the question whether the virginal os uteri is more easily disposed to conception than the gaping os of women who have borne children, he finds that, comparing 130 pluriparæ with 75 primiparæ, the same average of about ten days after the first day of menstruation was observed.

Taking 425 women whose children seemed mature, the average duration of gestation was 259'91 days, reckoning from day of conception. HECKER's tables give an average of 273'52 days. The range was from 231 days to 329, so that there is manifestly a fault in determining the day of conception.

AHLFELD gives a table of thirty cases, including six from FAYE, of presumed single or well-defined coitus. Gestation varied from 233 days to one case of 313 days. Both these extremes are taken from FAYE. The greater number ranged within 270 and 275 days. The average of all was 269'17 days, which corresponds closely with the period obtained by other modes of observation. (It is to be remarked that the weight of the child in FAYE's minimum case was 3000 grammes, and in the maximum case of 313 days it was only 2540. Since 3000 grammes is below the average

weight of a mature child, it seems only reasonable to infer that conception took place considerably within 313 days. With this exception no other case out of the thirty exceeded 287 days, and of the remaining twenty-eight all were below 282.—R. BAMES.)

AHLFELD then refers to the law enounced by CEDERSHJÖLD that labor takes place at the tenth menstrual epoch due. so that we should multiply the individual interval between two periods by 10. In many women this interval is not 28 days, but $27\frac{1}{2}$, $28\frac{1}{2}$, 29, 30. Hence, a duration of 275, 285, and so forth, is explained. By most authors, says AHLFELD, the duration is placed too high; 280, even 275 days, is too high. To estimate the expectancy of labor NÆGELE added seven days to the first day of the last menstrual appearance, and then reckoned three calendar months back. Thus, he took as the date of conception the second day after the cessation of menstruation, with an average duration of menstruation of five days. Thus he arrived at an average of 274 days, which is very close to the reality. AHLFELD's own plan is to take the tenth day from the beginning, the fifth from the end, of menstruation. There is a possible error in both ways of fixing the date of conception, and to illustrate this point he gives a table of 261 cases, calculated according to both, and showing the actual day of labor.

As to the sensation of the movements of the child, he shows that in 43 cases in which the day of its occurrence was noted, it ranged from 108 to 134 days, the average being 132.77 days.

The duration of labor in primiparæ was, on an average, 20 hours 48 minutes, and in pluriparæ 13 hours 42 minutes.

Meteorological Observations.

METEOROLOGICAL OBSERVATIONS AT ST. LOUIS, MO.

By A. WISLIZENUS, M.D.

The following observations of daily temperature in St. Louis are made with a MAXIMUM and MINIMUM thermometer (of Green, N. Y.). The daily minimum occurs generally in the night, the maximum about 3 P. M. The monthly mean of the daily minima and maxima, added and divided by 2, gives a quite reliable mean of the monthly temperature.

THERMOMETER FAHRENHEIT, 1870.

SEPTEMBER.			OCTOBER.		
DAY OF MONTH.	Minimum.	Maximum.	DAY OF MONTH.	Minimum.	Maximum.
1	69.0	84.5	1	62.5	73.0
2	63.0	76.5	2	60.0	75.0
3	61.0	79.5	3	57.0	77.5
4	59.0	76.5	4	47.5	65.5
5	59.5	77.5	5	45.0	69.0
6	64.5	90.0	6	48.5	71.0
7	68.5	91.0	7	50.0	74.0
8	70.0	91.5	8	60.0	76.0
9	67.0	87.5	9	50.0	72.0
10	68.0	84.0	10	53.0	60.0
11	64.5	81.5	11	53.5	67.0
12	62.5	82.0	12	42.0	64.0
13	65.5	74.5	13	40.0	67.5
14	65.5	70.0	14	51.5	72.0
15	66.0	80.0	15	54.5	80.0
16	64.5	84.0	16	60.0	77.5
17	66.5	82.5	17	46.0	67.5
18	62.0	78.5	18	44.0	56.5
19	59.0	76.5	19	39.5	46.0
20	59.5	82.0	20	40.0	58.5
21	62.0	85.0	21	42.0	60.0
22	63.0	85.0	22	44.0	76.0
23	65.0	84.5	23	44.5	76.0
24	66.0	74.0	24	53.5	76.5
25	55.0	72.0	25	61.0	72.5
26	62.5	71.0	26	64.0	79.0
27	60.5	78.0	27	66.5	83.5
28	61.0	79.5	28	50.0	55.5
29	61.0	73.5	29	48.5	54.0
30	55.5	70.0	30	51.5	64.0
			31	35.0	55.0
Means....	63.2	79.7	Means....	50.5	68.4
Monthly Mean...	71.4		Monthly Mean...	59.4	

REPORT OF ATMOSPHERIC ELECTRICITY, TEMPERATURE, AND HUMIDITY.

BASED ON DAILY OBSERVATIONS at 6, 9, 12, 3, 6, AND 9 O'CLOCK, FROM
MORNING TILL NIGHT, AT ST. LOUIS, MO.

1.—Monthly Mean of Positive Atmospheric Electricity.

Year	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.	Mean in 10 years.	No. of Thunder Storms.	Prevailing Winds.
1870	Sept.	0.1	0.1	0.0	0.1	0.3	0.0	0.1	2.3	1	n. ne. se.
1870	Oct.	0.1	0.2	0.2	0.2	0.0	0.0	0.1	5.8	1	s. ne.

2.—Monthly Mean of Temperature, Fahrenheit.

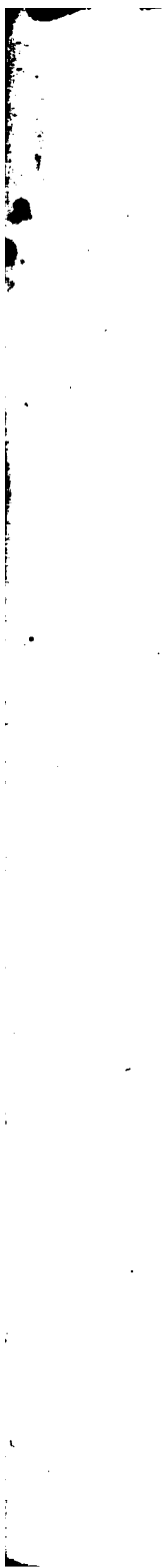
Year.	Month.	6 a. m.	9 a. m.	12 m.	3 p. m.	6 p. m.	9 p. m.	Mean of Month.
1870.	Sept.	63.2	70.9	78.5	79.0	72.9	68.4	72.1
1870.	Oct.	53.2	58.9	65.1	65.8	59.7	55.7	59.7

3.—Monthly Mean of Relative Humidity.

1870.	Sept.	87.1	78.9	62.0	63.4	70.0	78.4	73.3
1870.	Oct.	88.4	76.8	61.7	62.5	76.8	80.4	74.4

September and October were both warmer than usual, to wit, 71.4 and 59.4, to an average monthly mean of 69.4 and 55.8. But the heat was not excessive, fairly distributed, and exercising a beneficial influence on ripening fruit, and on general health. September was very dry. Only 0.53 inches of rain fell to an average of 3.25. October, with a rainfall of 3.17 inches, approached its average—3.39. In the two months only two thunder-storms occurred. Positive electricity in both months was lower than I have ever observed it. Once in September and twice in October an aurora borealis appeared, but I had no chance of observing them.

When, last April, a sudden frost set in, the buds of the peach trees were so injured that no crop was to be expected. The same was then feared of the grape-vine, but the result was rather different; the vintage proved to be uncommonly good, both as to quantity and quality. This was mostly caused by favorable temperature during the summer months. The culture of the vine is generally fixed to a mean summer temperature of at least 50 deg., F., to a mean heat of 59 deg. during the cycle of vegetation of the vine, and to a mean summer heat of 66 deg. But to produce a good wine a higher temperature is wanted, especially about the time when the sugar is formed in the grape,—that is, towards the end of summer and beginning of fall. The average mean heat of our three summer months—June, July and August—s 76.6; this year 76.7; but September was several degrees warmer than usual quickening the formation of sugar in the grape, and producing thus a sweeter and richer must.





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